FIG.1

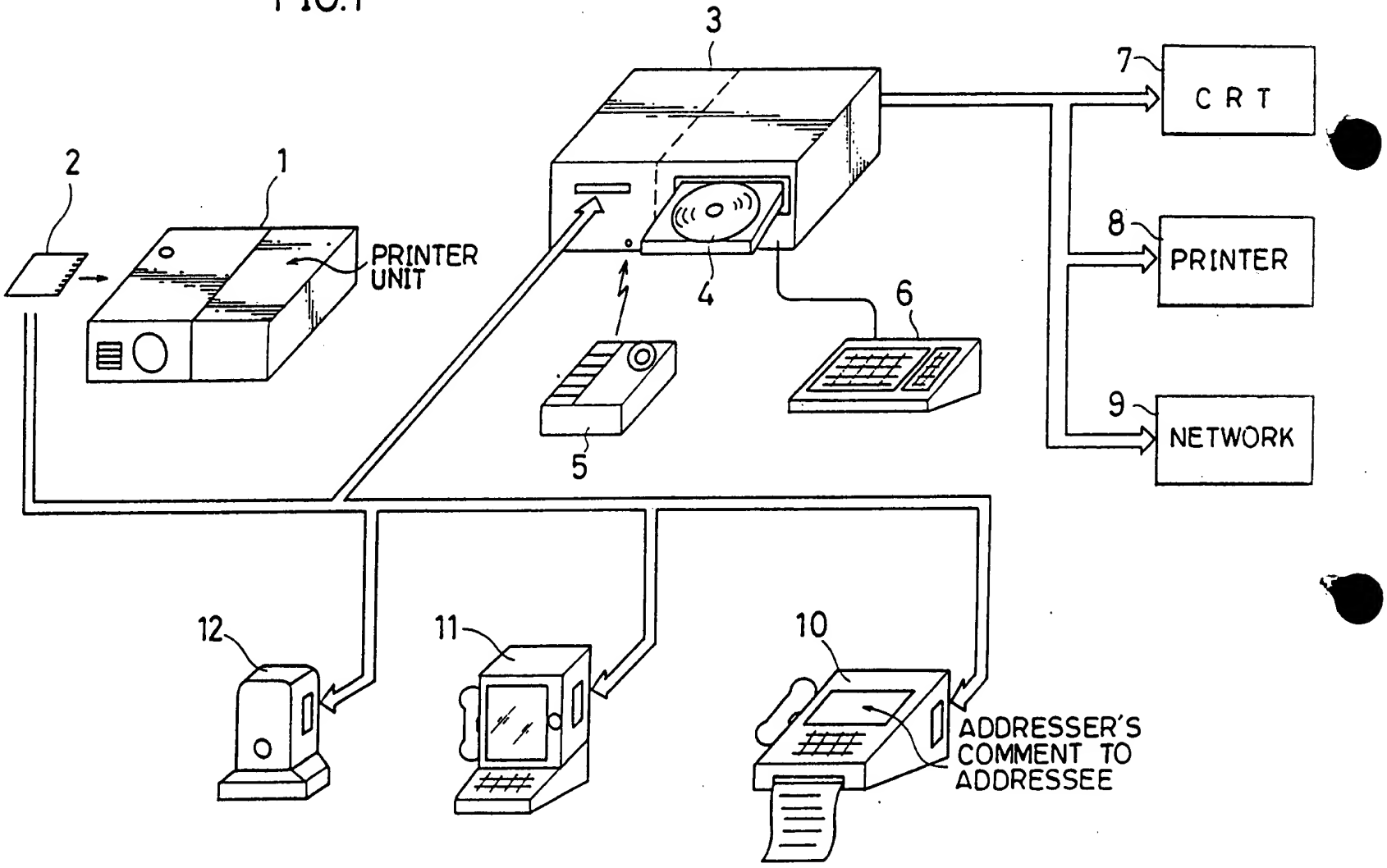
3
7
CRT
2
1
PRINTER UNIT
8
PRINTER
4
6
9
NETWORK
5
12
11
10
ADDRESSER'S COMMENT TO ADDRESSEE

FIG.2A

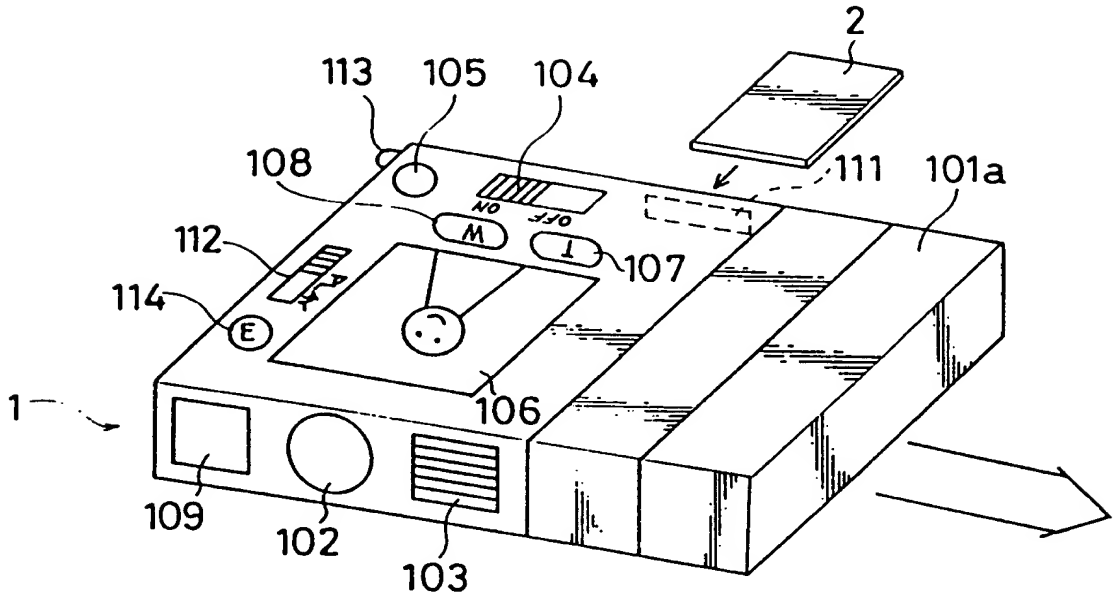
2
113
105
104
108
111
101a
112
107
114
106
1
109
102
103

FIG.2B

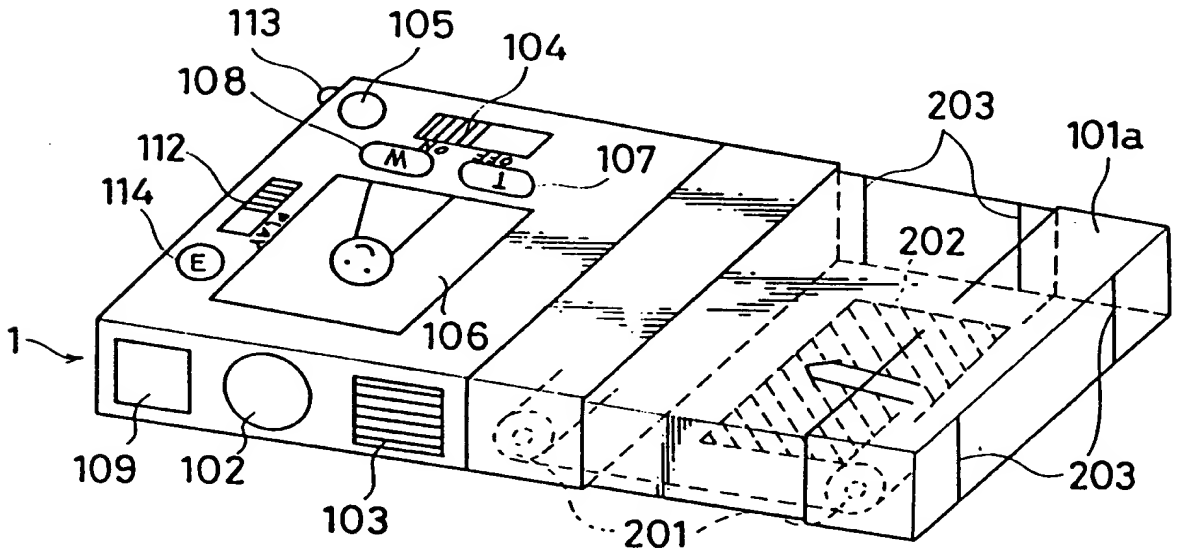
113
105
104
108
203
101a
112
107
114
202
106
1
109
102
103
201
203

FIG.3

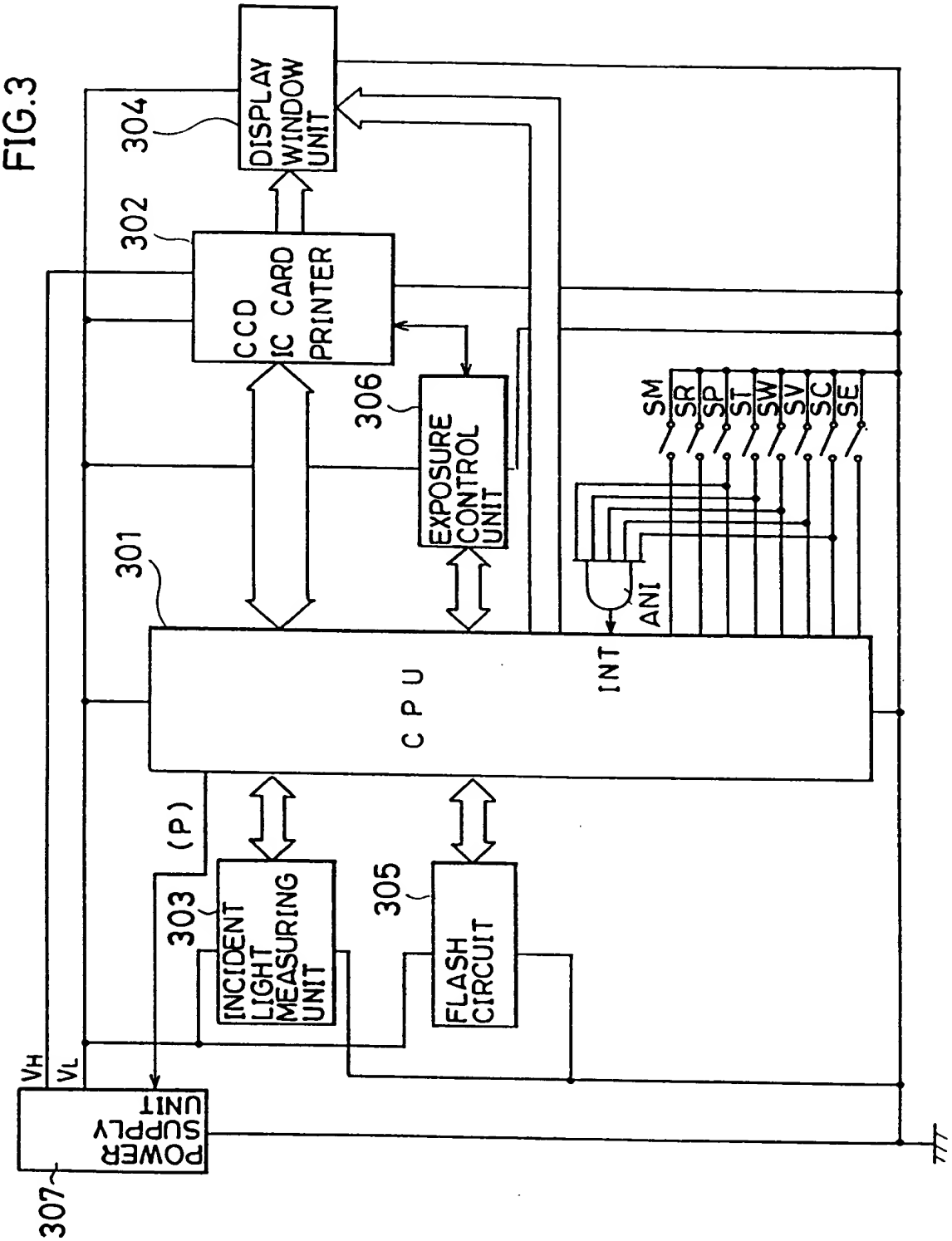
DISPLAY WINDOW UNIT
304
302
CCD IC CARD PRINTER
306
EXPOSURE CONTROL UNIT
SM
SR
SP
ST
SW
SV
SC
SE
ANI
INT
301
CPU
(P)
303
INCIDENT LIGHT MEASURING UNIT
305
FLASH CIRCUIT
VH
VL
POWER SUPPLY UNIT
307

FIG.4

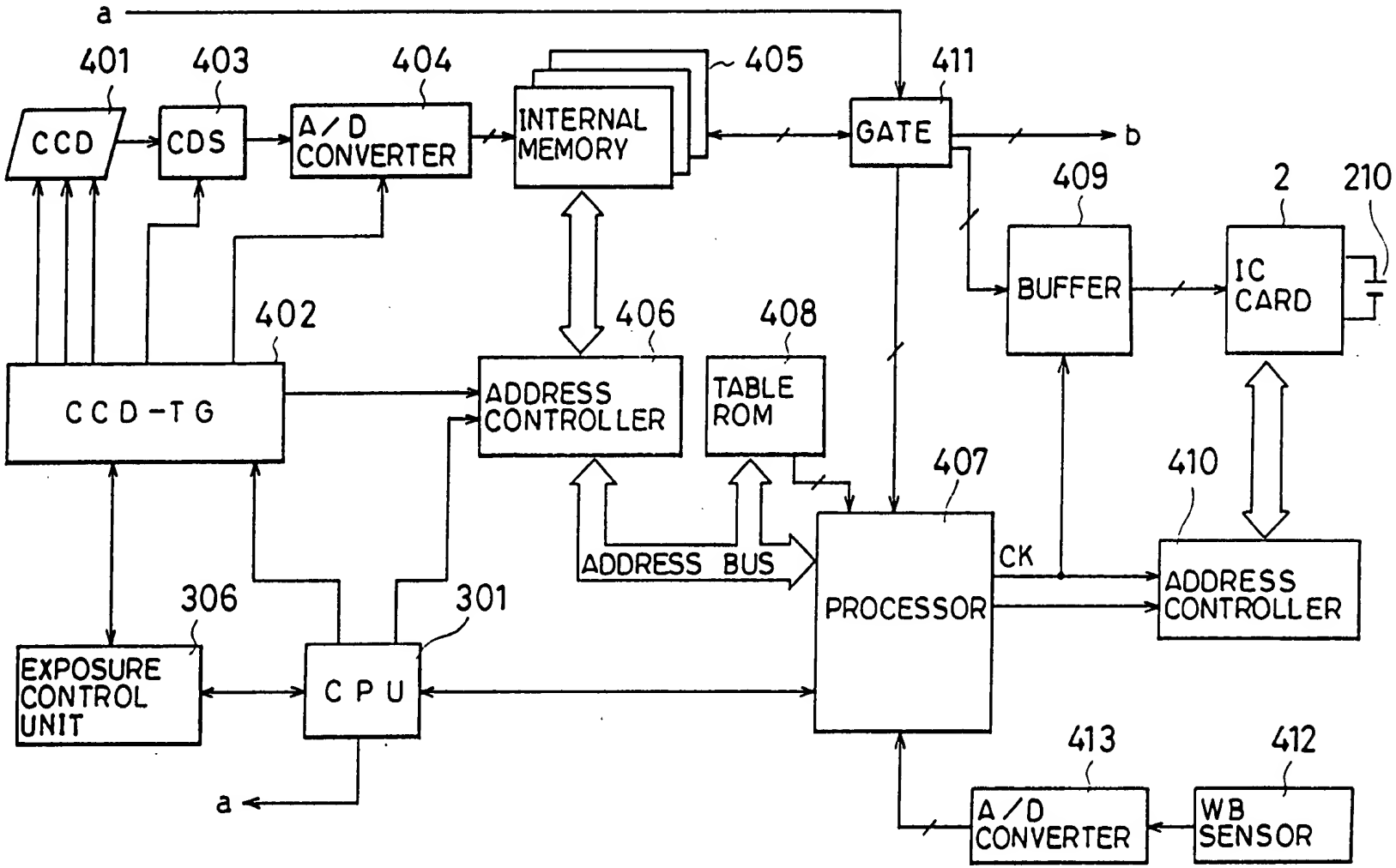
a
401
403
404
405
411
CCD
CDS
A/D CONVERTER
INTERNAL MEMORY
GATE
b
409
2
210
BUFFER
IC CARD
402
406
408
CCD-TG
ADDRESS CONTROLLER
TABLE ROM
407
410
ADDRESS BUS
PROCESSOR
CK
ADDRESS CONTROLLER
306
301
EXPOSURE CONTROL UNIT
CPU
a
413
412
A/D CONVERTER
WB SENSOR

FIG.5

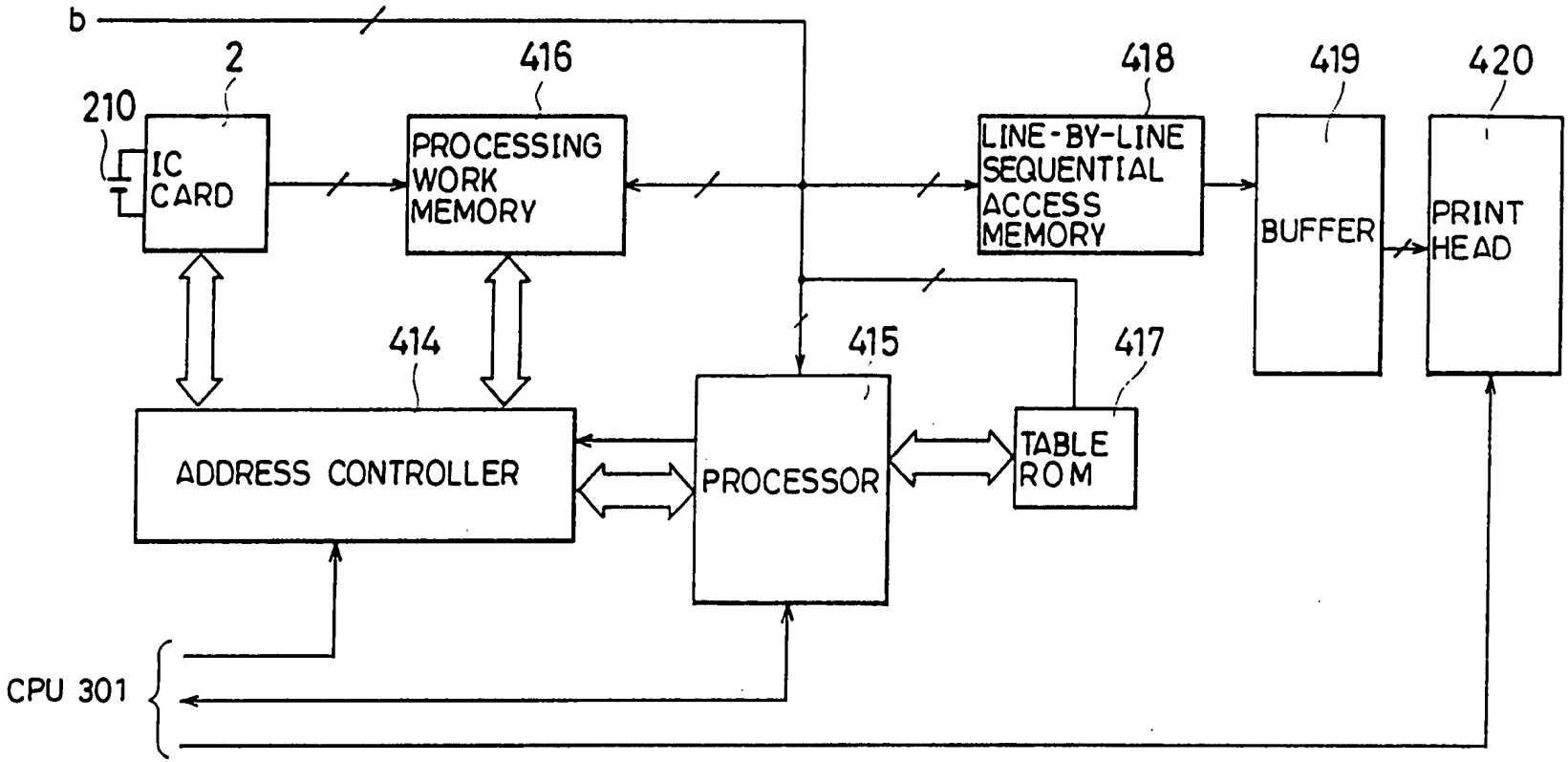
b
2
210
IC CARD
416
PROCESSING WORK MEMORY
418
LINE-BY-LINE SEQUENTIAL ACCESS MEMORY
419
BUFFER
420
PRINT HEAD
414
415
417
ADDRESS CONTROLLER
PROCESSOR
TABLE ROM
CPU 301

FIG.6

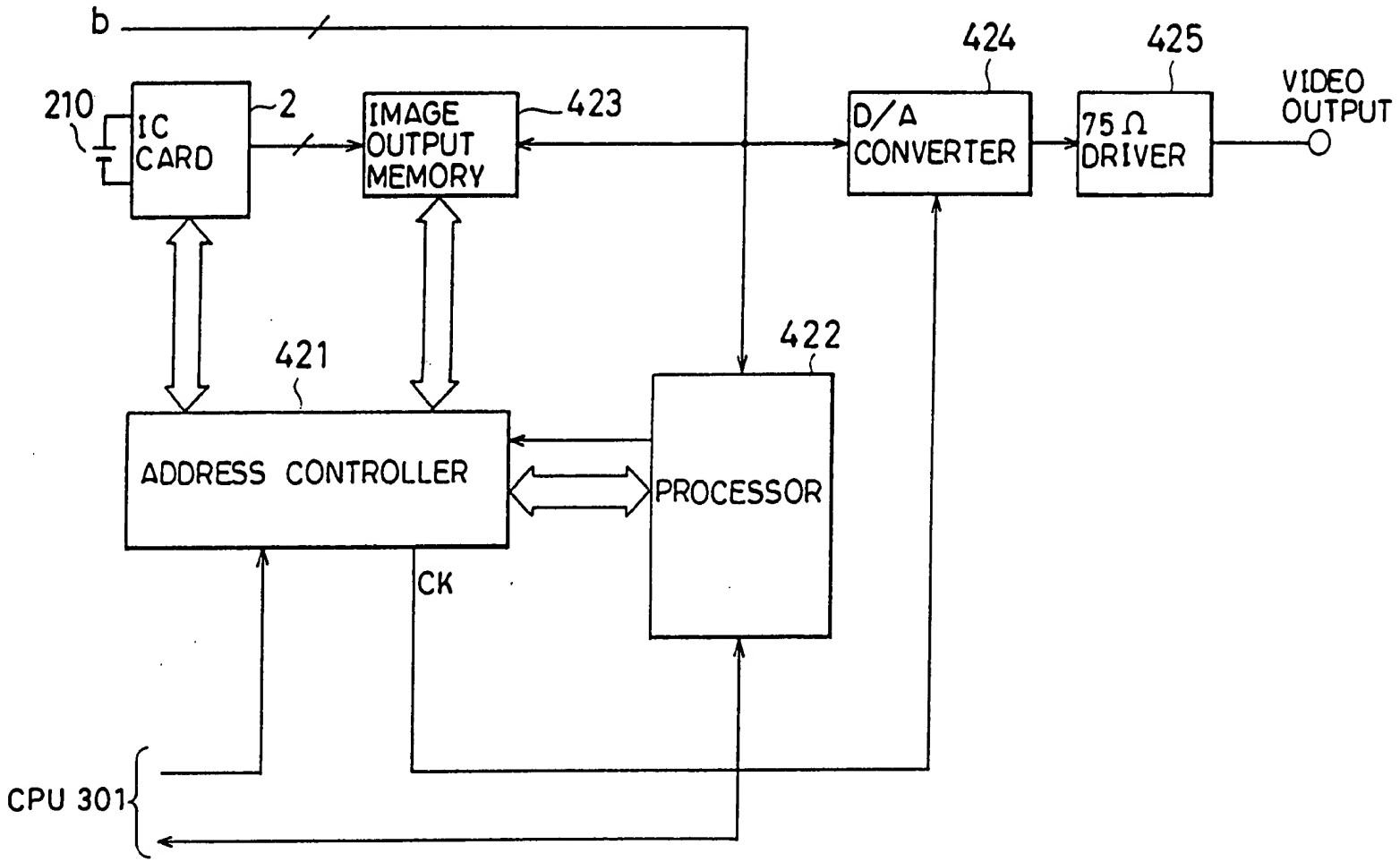
b
210
IC CARD
2
IMAGE OUTPUT MEMORY
423
424
D/A CONVERTER
425
75 Ω DRIVER
VIDEO OUTPUT
421
422
ADDRESS CONTROLLER
PROCESSOR
CK
CPU 301

FIG.7

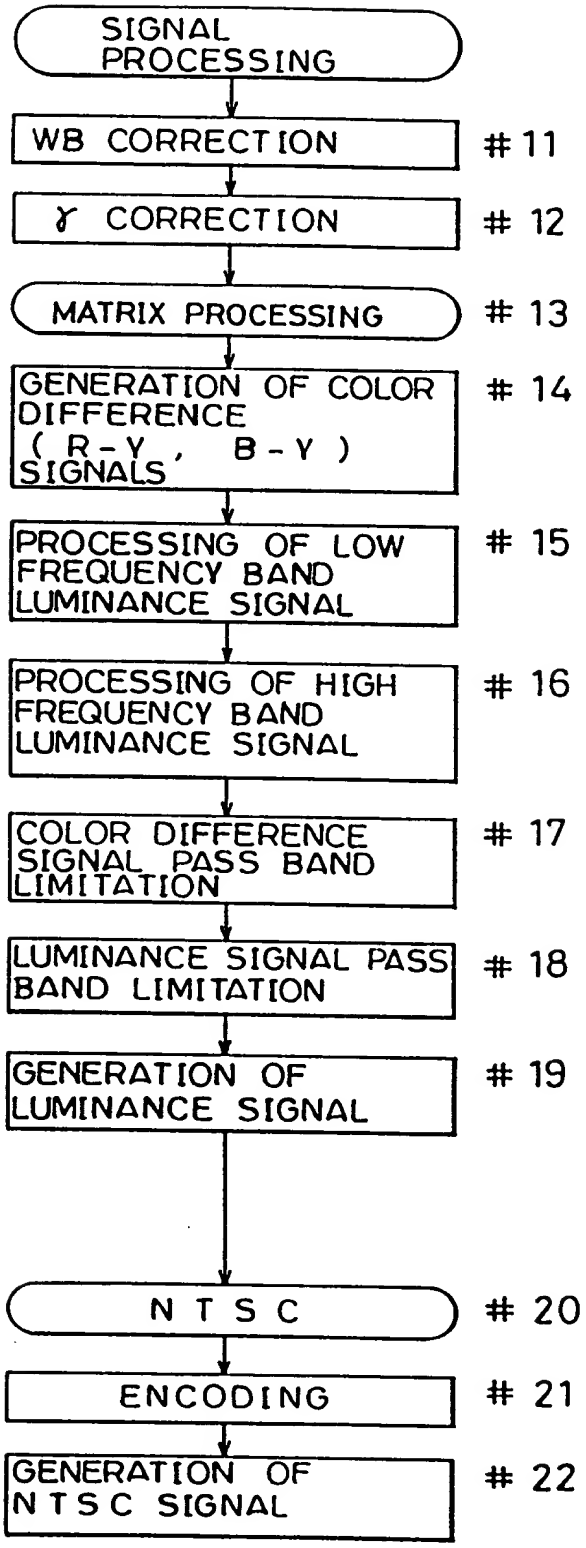
SIGNAL PROCESSING
WB CORRECTION
11
γ CORRECTION
12
MATRIX PROCESSING
13
GENERATION OF COLOR DIFFERENCE (R-Y , B-Y) SIGNALS
14
PROCESSING OF LOW FREQUENCY BAND LUMINANCE SIGNAL
15
PROCESSING OF HIGH FREQUENCY BAND LUMINANCE SIGNAL
16
COLOR DIFFERENCE SIGNAL PASS BAND LIMITATION
17
LUMINANCE SIGNAL PASS BAND LIMITATION
18
GENERATION OF LUMINANCE SIGNAL
19
N T S C
20
ENCODING
21
GENERATION OF N T S C SIGNAL
22

FIG.8

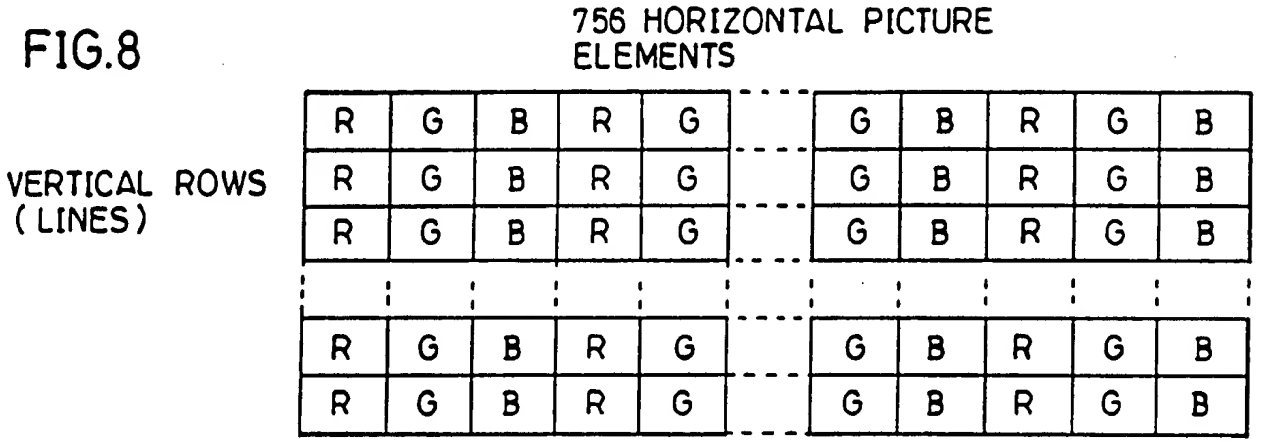

FIG. 9A

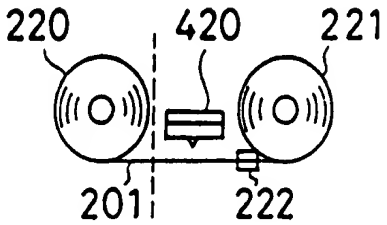

FIG. 9B

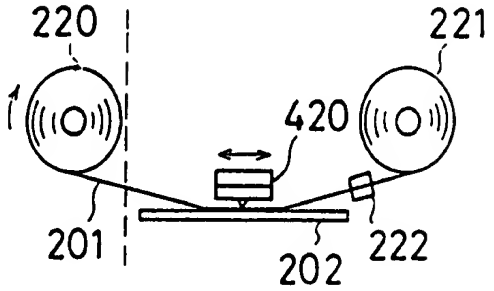

FIG.10

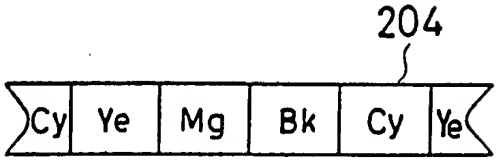

FIG.11

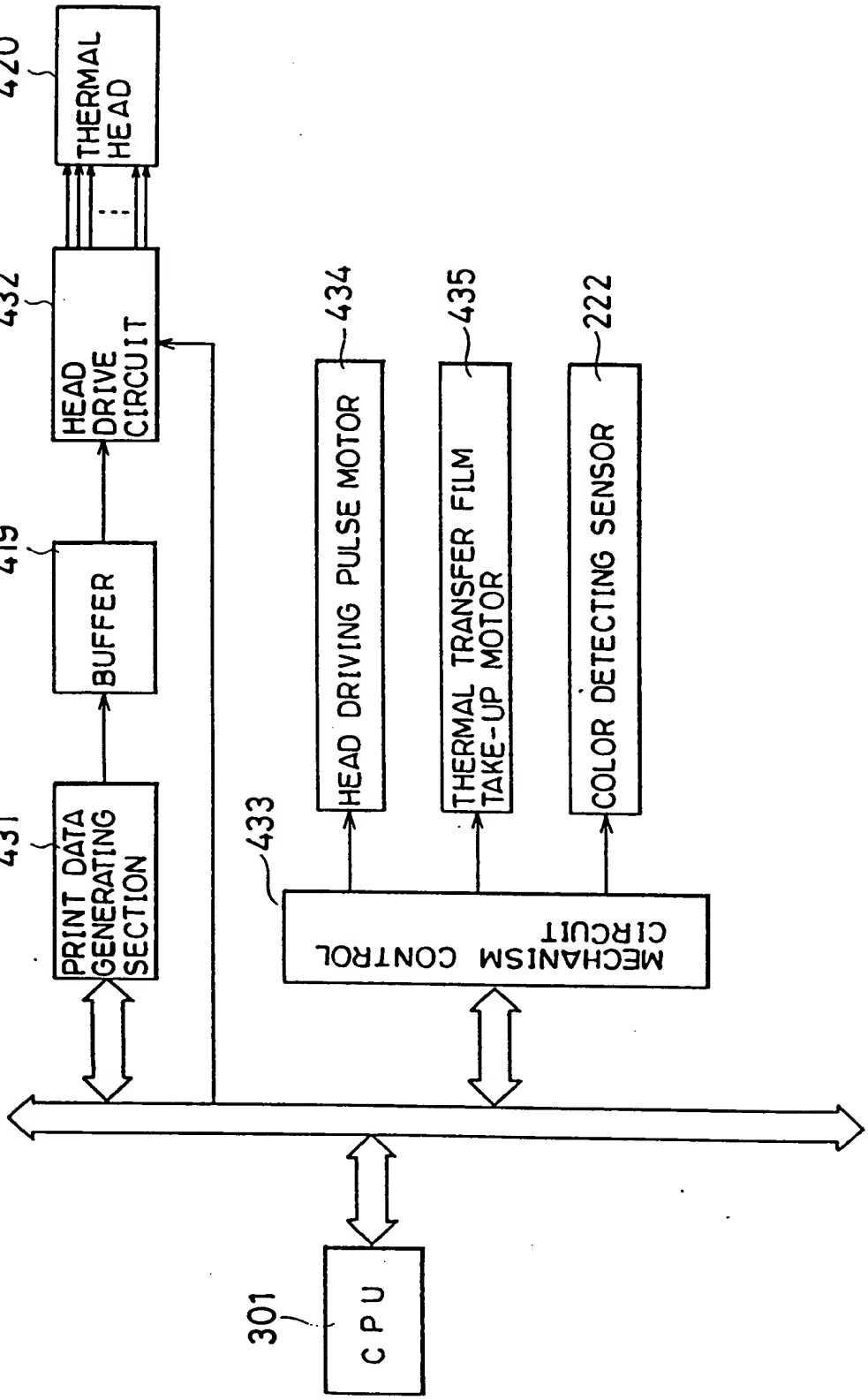
420
THERMAL HEAD
432
HEAD DRIVE CIRCUIT
419
BUFFER
431
PRINT DATA GENERATING SECTION
434
HEAD DRIVING PULSE MOTOR
435
THERMAL TRANSFER FILM TAKE-UP MOTOR
222
COLOR DETECTING SENSOR
433
MECHANISM CONTROL CIRCUIT
301
C P U

FIG.12

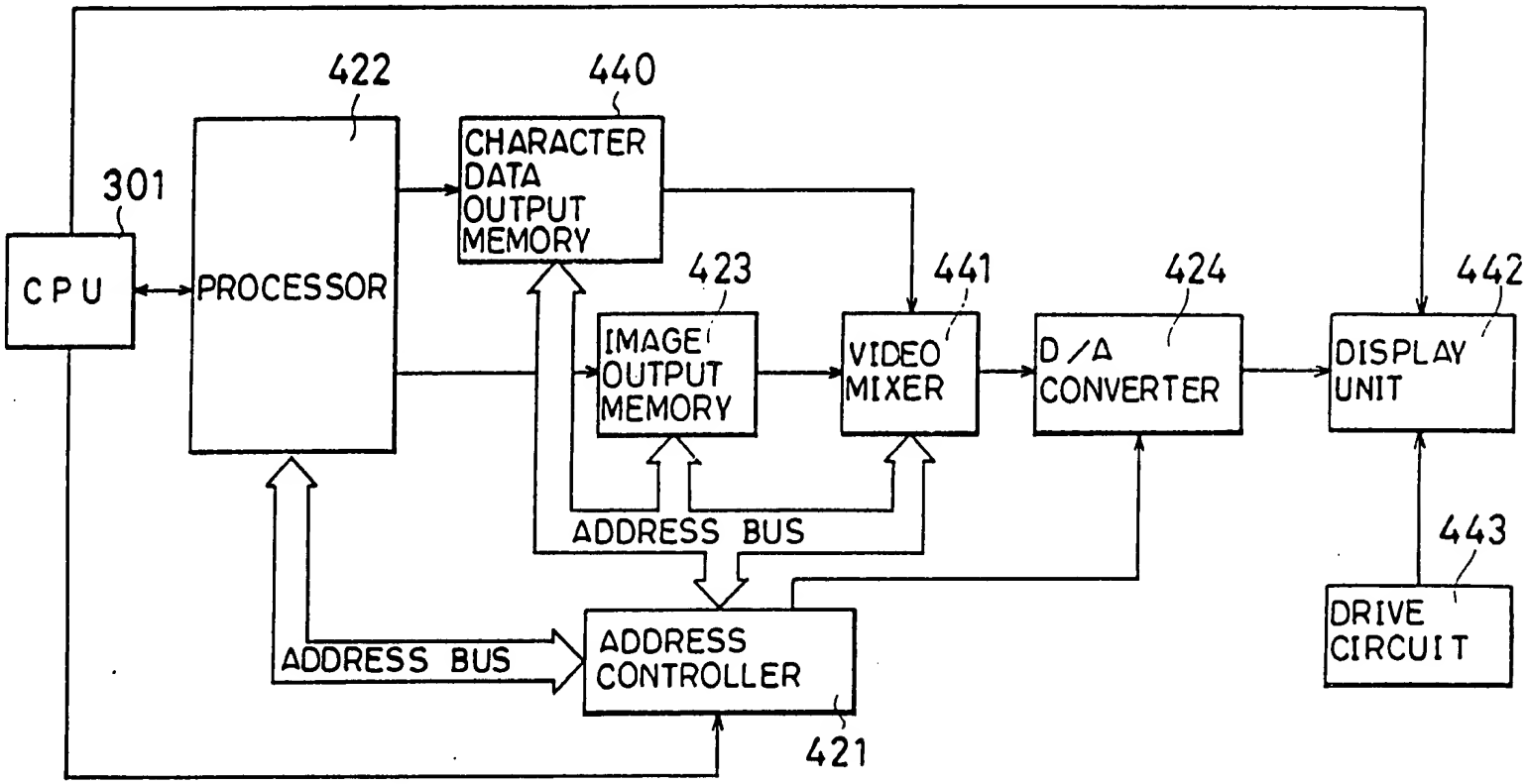
422
440
301
CHARACTER DATA OUTPUT MEMORY
CPU
PROCESSOR
423
441
424
442
IMAGE OUTPUT MEMORY
VIDEO MIXER
D/A CONVERTER
DISPLAY UNIT
ADDRESS BUS
443
DRIVE CIRCUIT
ADDRESS BUS
ADDRESS CONTROLLER
421

FIG.13A

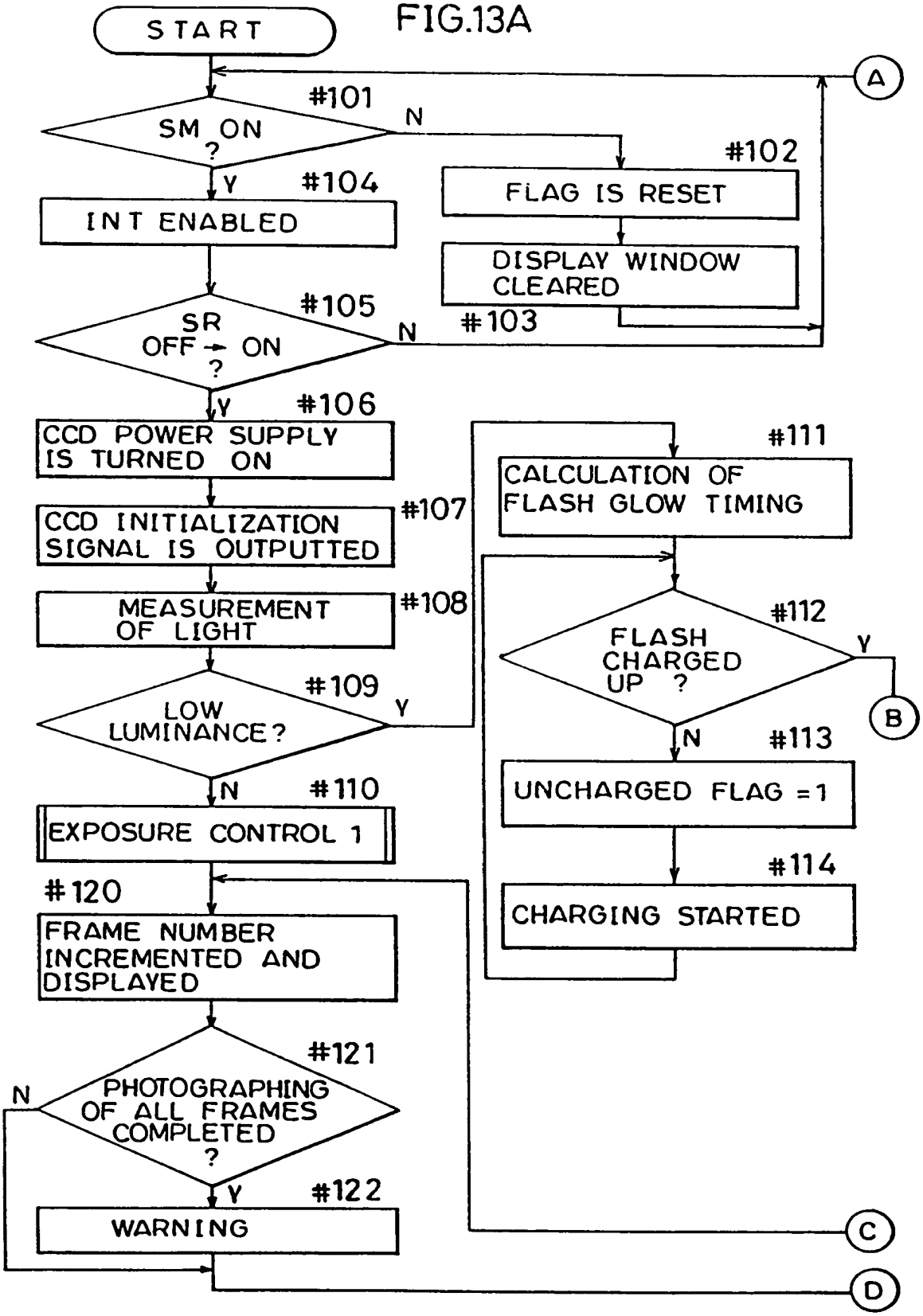
START
A
#101
SM ON ?
N
Y
#102
FLAG IS RESET
#104
INT ENABLED
DISPLAY WINDOW CLEARED
#105
SR OFF → ON ?
N
#103
Y
#106
CCD POWER SUPPLY IS TURNED ON
#107
CCD INITIALIZATION SIGNAL IS OUTPUTTED
#108
MEASUREMENT OF LIGHT
#109
LOW LUMINANCE?
Y
N
#110
EXPOSURE CONTROL 1
#111
CALCULATION OF FLASH GLOW TIMING
#112
FLASH CHARGED UP ?
Y
B
N
#113
UNCHARGED FLAG =1
#114
CHARGING STARTED
#120
FRAME NUMBER INCREMENTED AND DISPLAYED
#121
PHOTOGRAPHING OF ALL FRAMES COMPLETED ?
N
Y
#122
WARNING
C
D

FIG.13B

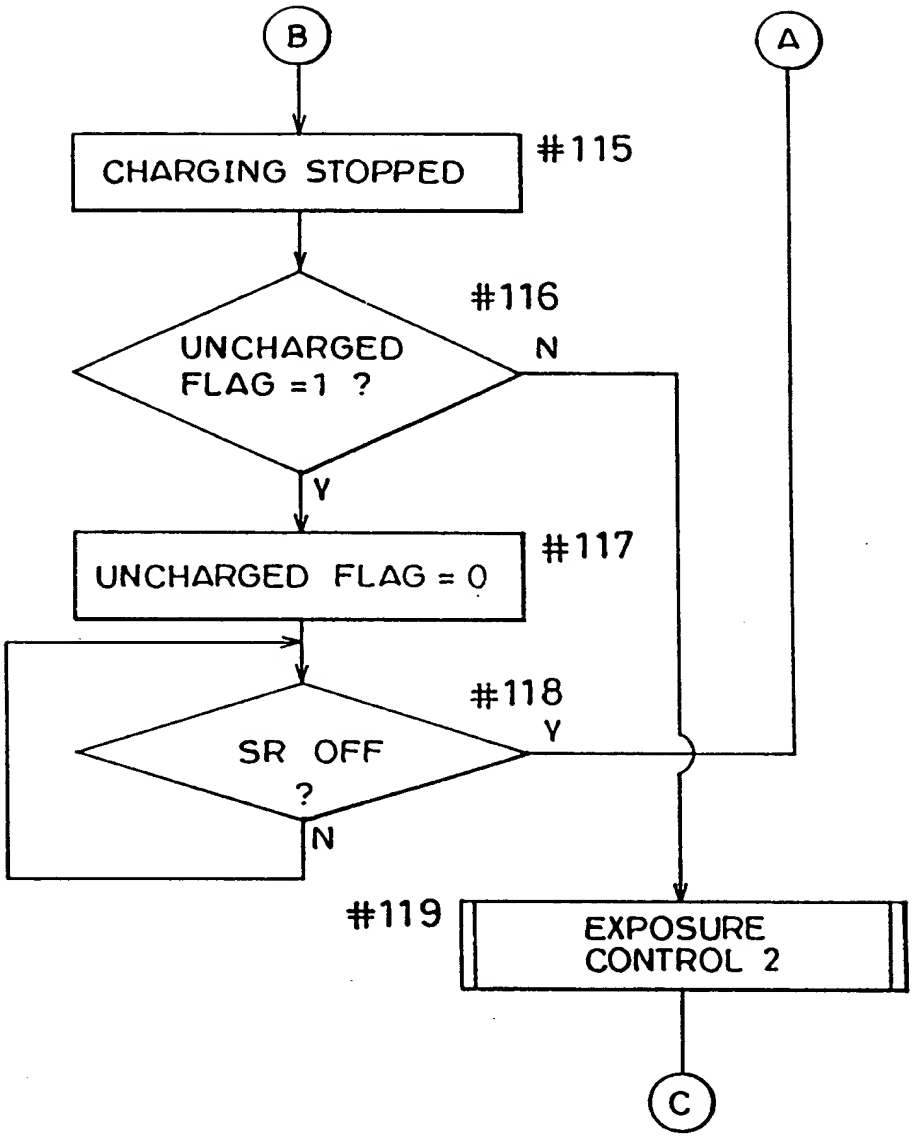
B
A
CHARGING STOPPED
#115
#116
UNCHARGED FLAG =1 ?
N
Y
UNCHARGED FLAG = 0
#117
#118
SR OFF ?
Y
N
#119
EXPOSURE CONTROL 2
C

FIG.13C

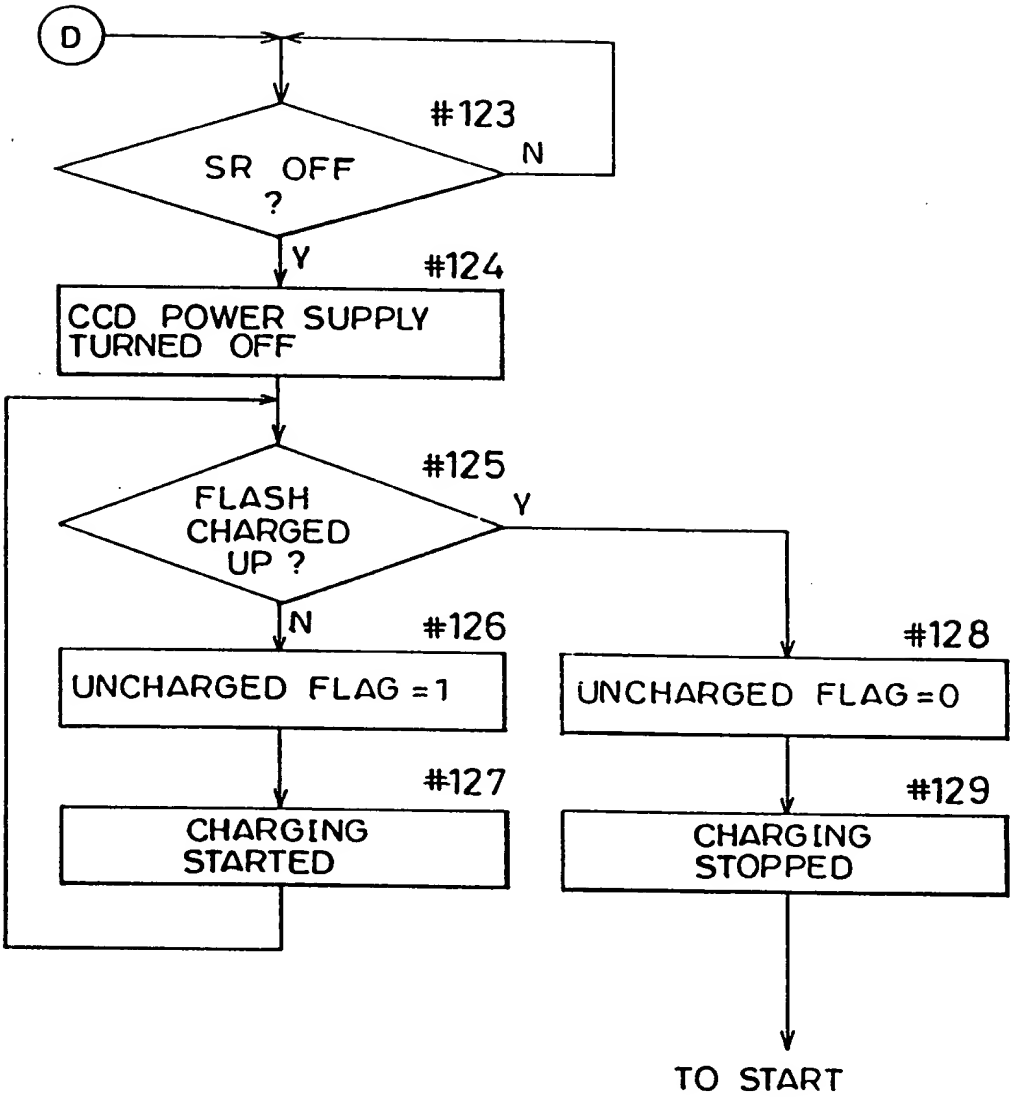
D
#123
SR OFF ?
N
Y
#124
CCD POWER SUPPLY TURNED OFF
#125
FLASH CHARGED UP ?
Y
N
#126
UNCHARGED FLAG = 1
#127
CHARGING STARTED
#128
UNCHARGED FLAG = 0
#129
CHARGING STOPPED
TO START

FIG.14A

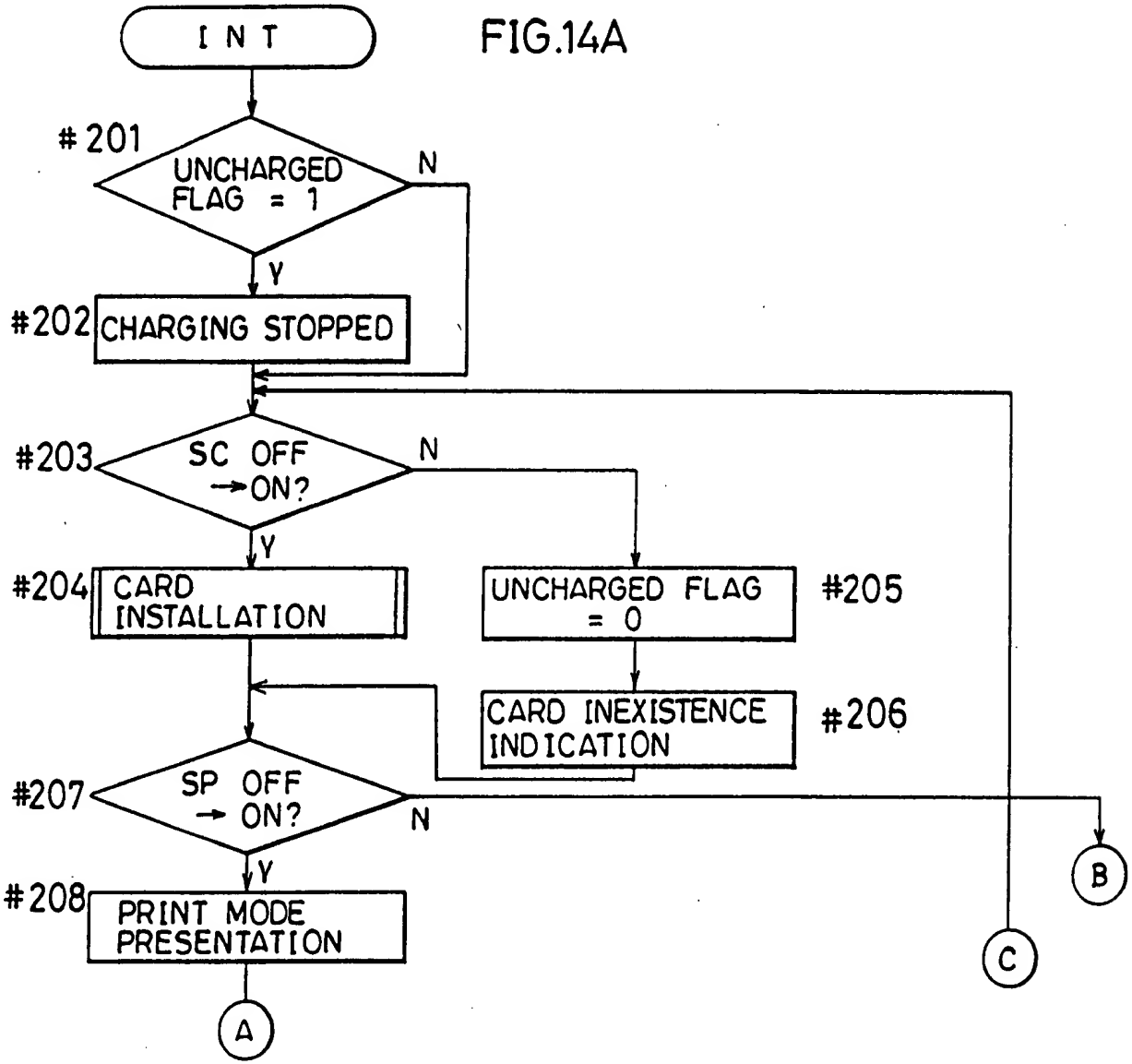
INT
#201
UNCHARGED FLAG = 1
N
Y
#202
CHARGING STOPPED
#203
SC OFF →ON?
N
Y
#204
CARD INSTALLATION
UNCHARGED FLAG = 0
#205
CARD INEXISTENCE INDICATION
#206
#207
SP OFF → ON?
N
Y
#208
PRINT MODE PRESENTATION
A
B
C

FIG.14B

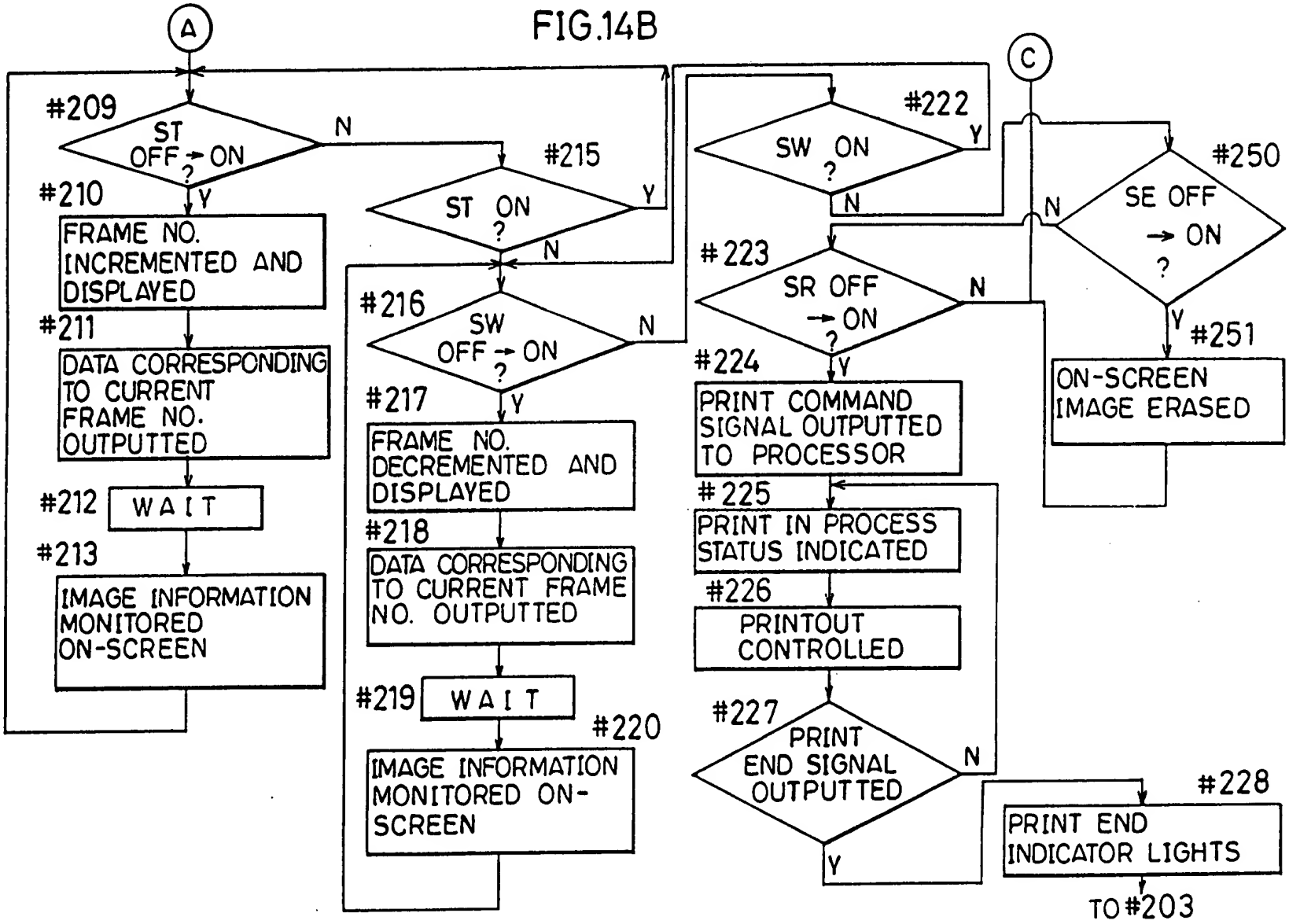
A
#209
ST OFF → ON ?
N
Y
#210
FRAME NO. INCREMENTED AND DISPLAYED
#211
DATA CORRESPONDING TO CURRENT FRAME NO. OUTPUTTED
#212
WAIT
#213
IMAGE INFORMATION MONITORED ON-SCREEN
#215
ST ON ?
Y
N
#216
SW OFF → ON ?
N
Y
#217
FRAME NO. DECREMENTED AND DISPLAYED
#218
DATA CORRESPONDING TO CURRENT FRAME NO. OUTPUTTED
#219
WAIT
#220
IMAGE INFORMATION MONITORED ON-SCREEN
C
#222
SW ON ?
Y
N
#223
SR OFF → ON ?
N
Y
#224
PRINT COMMAND SIGNAL OUTPUTTED TO PROCESSOR
#225
PRINT IN PROCESS STATUS INDICATED
#226
PRINTOUT CONTROLLED
#227
PRINT END SIGNAL OUTPUTTED
N
Y
#250
SE OFF → ON ?
N
Y
#251
ON-SCREEN IMAGE ERASED
#228
PRINT END INDICATOR LIGHTS
TO #203

FIG.14C

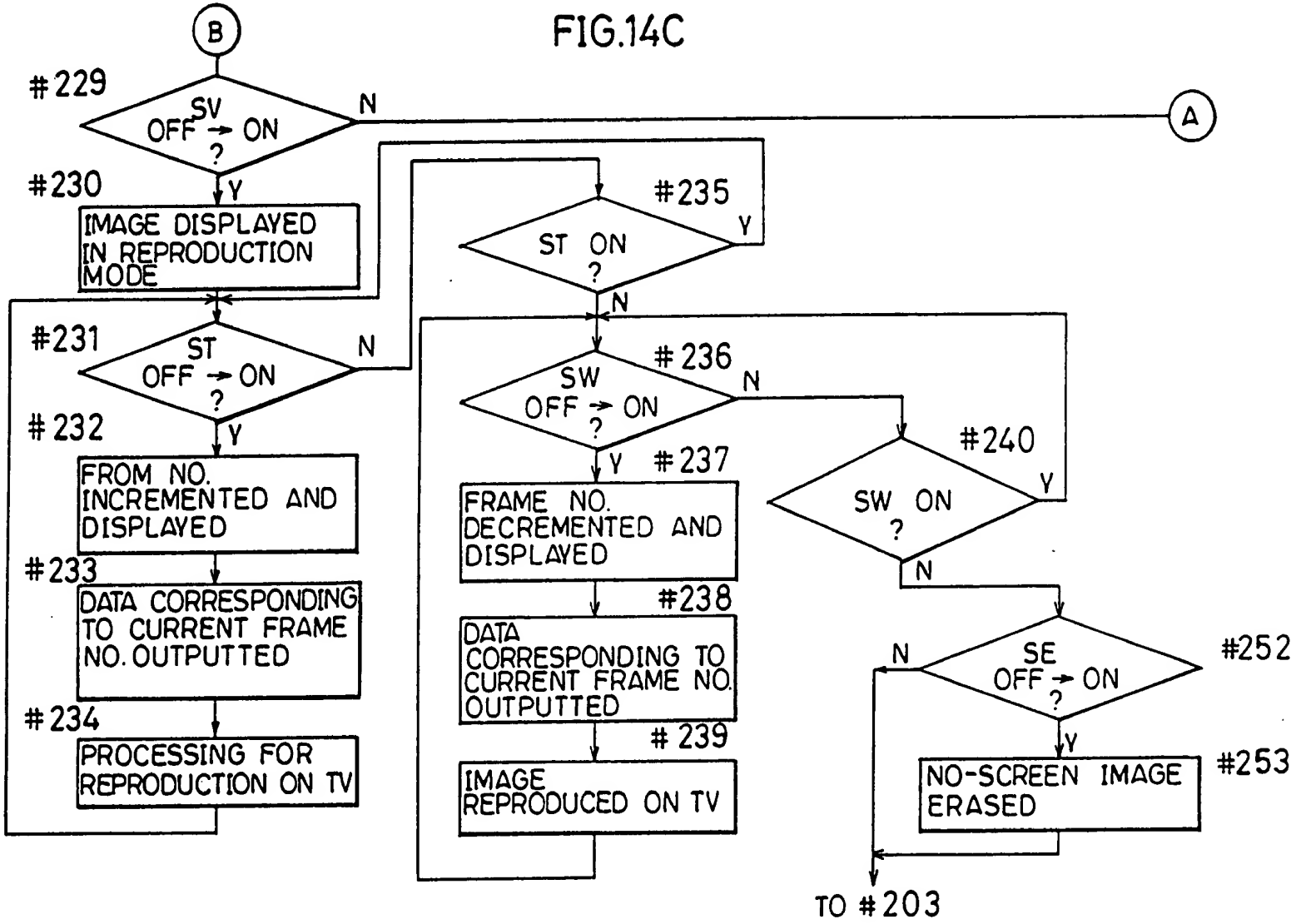
B
#229
SV OFF → ON ?
N
A
Y
#230
IMAGE DISPLAYED IN REPRODUCTION MODE
#231
ST OFF → ON ?
N
Y
#232
FROM NO. INCREMENTED AND DISPLAYED
#233
DATA CORRESPONDING TO CURRENT FRAME NO. OUTPUTTED
#234
PROCESSING FOR REPRODUCTION ON TV
#235
ST ON ?
Y
N
#236
SW OFF → ON ?
N
Y
#237
FRAME NO. DECREMENTED AND DISPLAYED
#238
DATA CORRESPONDING TO CURRENT FRAME NO. OUTPUTTED
#239
IMAGE REPRODUCED ON TV
#240
SW ON ?
Y
N
#252
SE OFF → ON ?
N
Y
#253
NO-SCREEN IMAGE ERASED
TO #203

FIG.14D

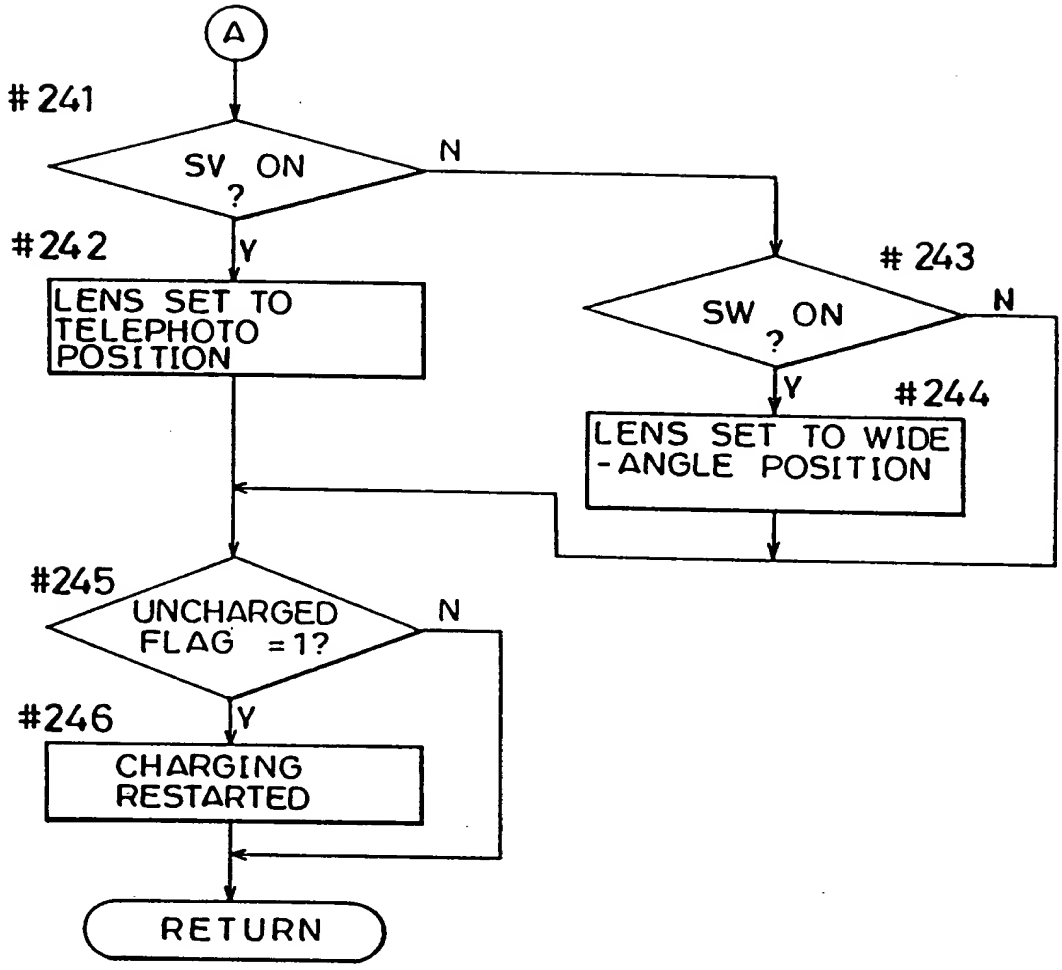
A
#241
SV ON ?
N
Y
#242
LENS SET TO TELEPHOTO POSITION
#243
SW ON ?
N
Y
#244
LENS SET TO WIDE -ANGLE POSITION
#245
UNCHARGED FLAG =1?
N
Y
#246
CHARGING RESTARTED
RETURN

FIG.15A

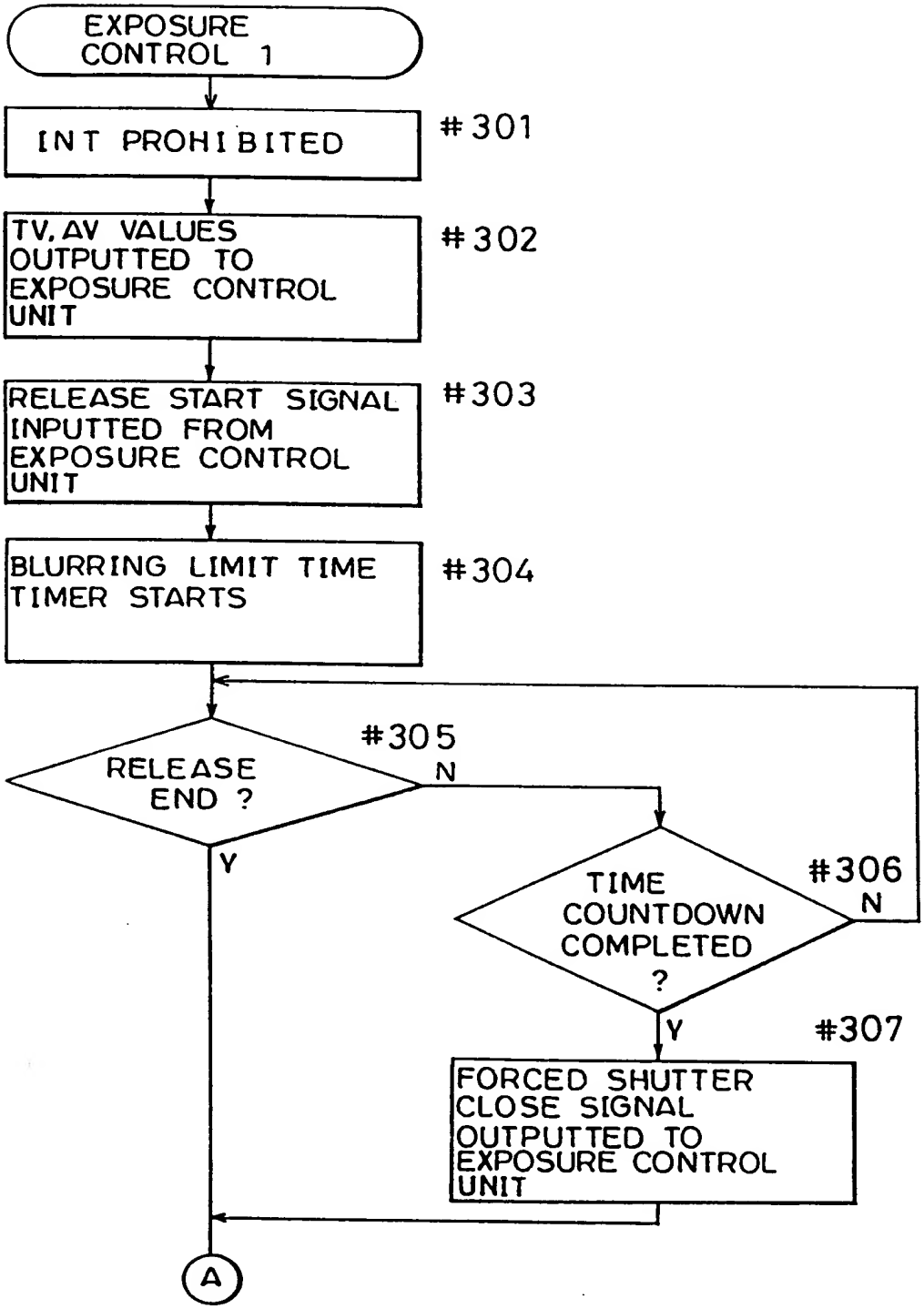
EXPOSURE CONTROL 1
INT PROHIBITED
#301
TV, AV VALUES OUTPUTTED TO EXPOSURE CONTROL UNIT
#302
RELEASE START SIGNAL INPUTTED FROM EXPOSURE CONTROL UNIT
#303
BLURRING LIMIT TIME TIMER STARTS
#304
#305
RELEASE END ?
N
Y
TIME COUNTDOWN COMPLETED ?
#306
N
Y
#307
FORCED SHUTTER CLOSE SIGNAL OUTPUTTED TO EXPOSURE CONTROL UNIT
A

FIG.15B

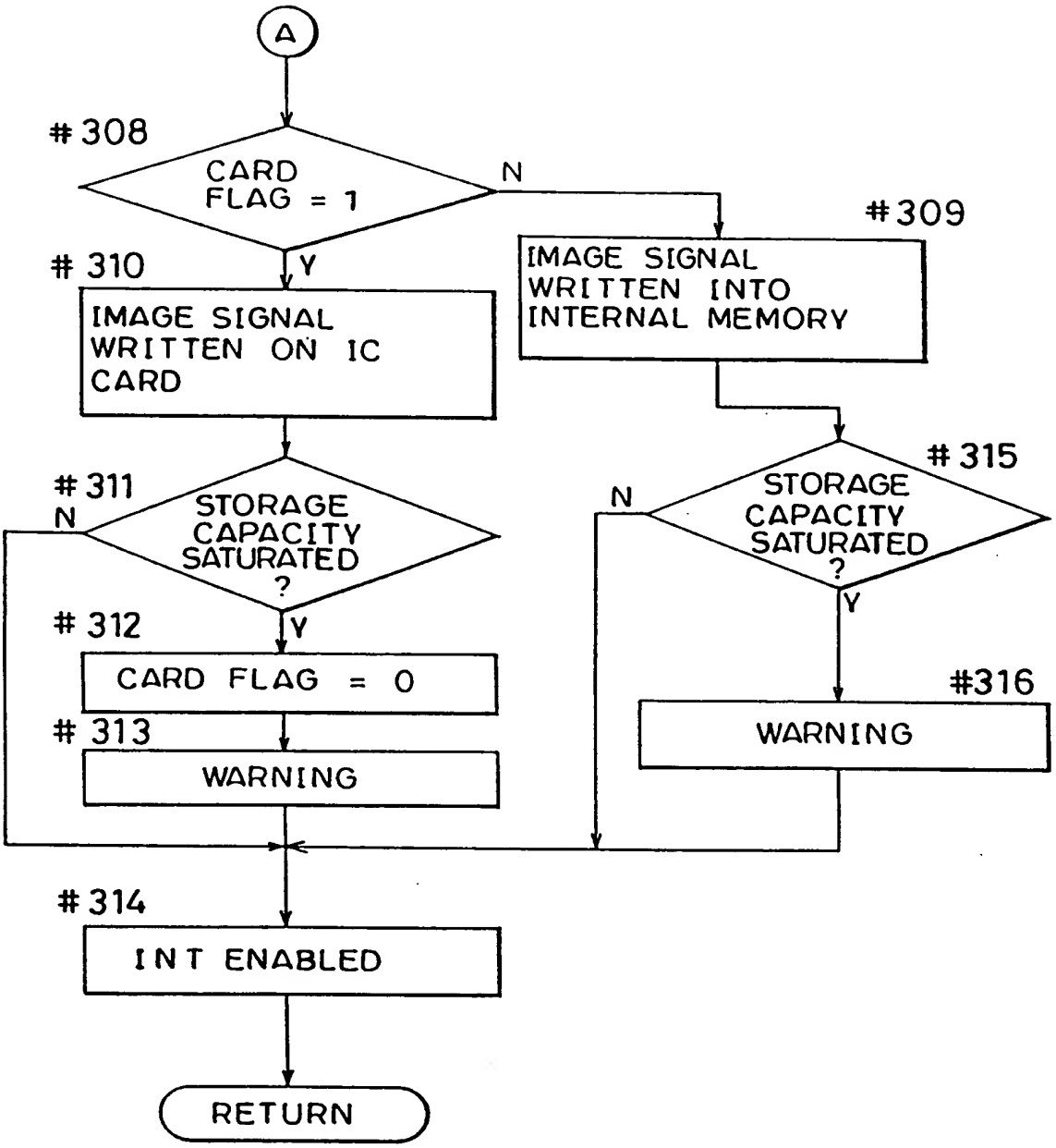
A
#308
CARD FLAG = 1
N
Y
#309
IMAGE SIGNAL WRITTEN INTO INTERNAL MEMORY
#310
IMAGE SIGNAL WRITTEN ON IC CARD
#311
N
STORAGE CAPACITY SATURATED ?
#315
N
STORAGE CAPACITY SATURATED ?
Y
#312
Y
CARD FLAG = 0
#313
WARNING
#316
WARNING
#314
INT ENABLED
RETURN

FIG.16A

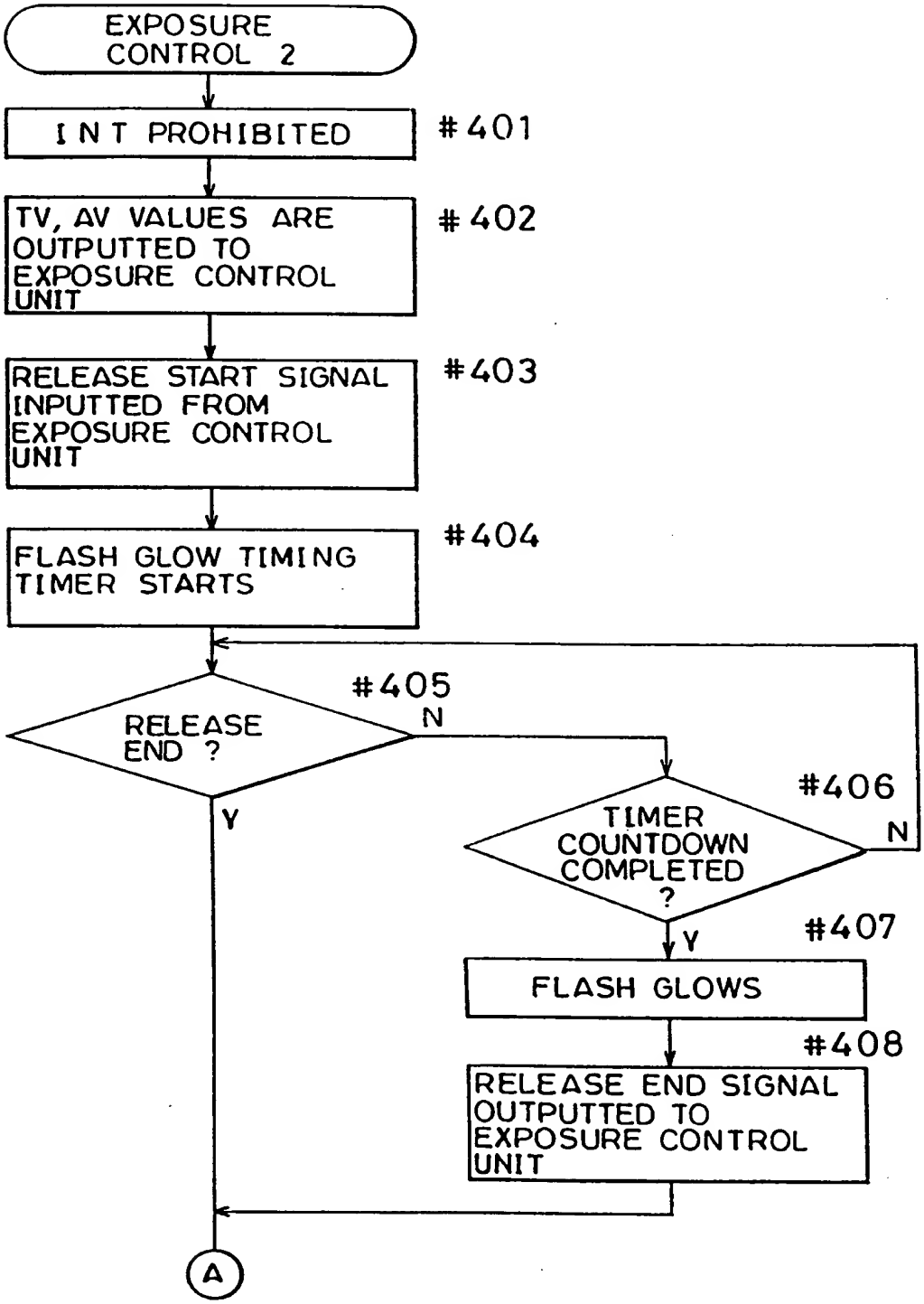
EXPOSURE CONTROL 2
INT PROHIBITED
#401
TV, AV VALUES ARE OUTPUTTED TO EXPOSURE CONTROL UNIT
#402
RELEASE START SIGNAL INPUTTED FROM EXPOSURE CONTROL UNIT
#403
FLASH GLOW TIMING TIMER STARTS
#404
#405
RELEASE END ?
N
Y
#406
TIMER COUNTDOWN COMPLETED ?
N
Y
#407
FLASH GLOWS
#408
RELEASE END SIGNAL OUTPUTTED TO EXPOSURE CONTROL UNIT
A

FIG.16B

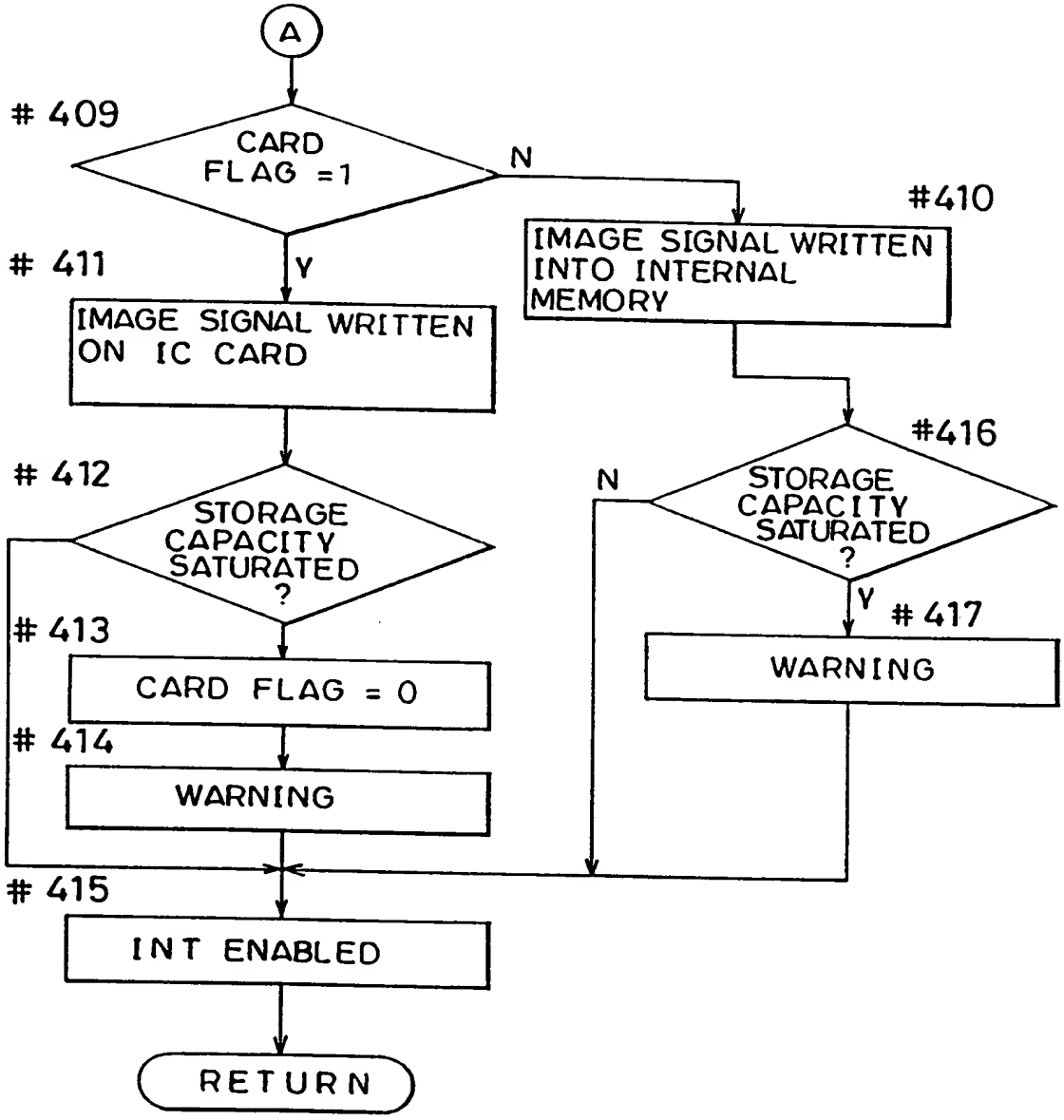
A
409
CARD FLAG =1
N
#410
IMAGE SIGNAL WRITTEN INTO INTERNAL MEMORY
Y
411
IMAGE SIGNAL WRITTEN ON IC CARD
#416
N
STORAGE CAPACITY SATURATED ?
412
STORAGE CAPACITY SATURATED ?
Y
417
WARNING
413
CARD FLAG = 0
414
WARNING
415
INT ENABLED
RETURN

FIG.17

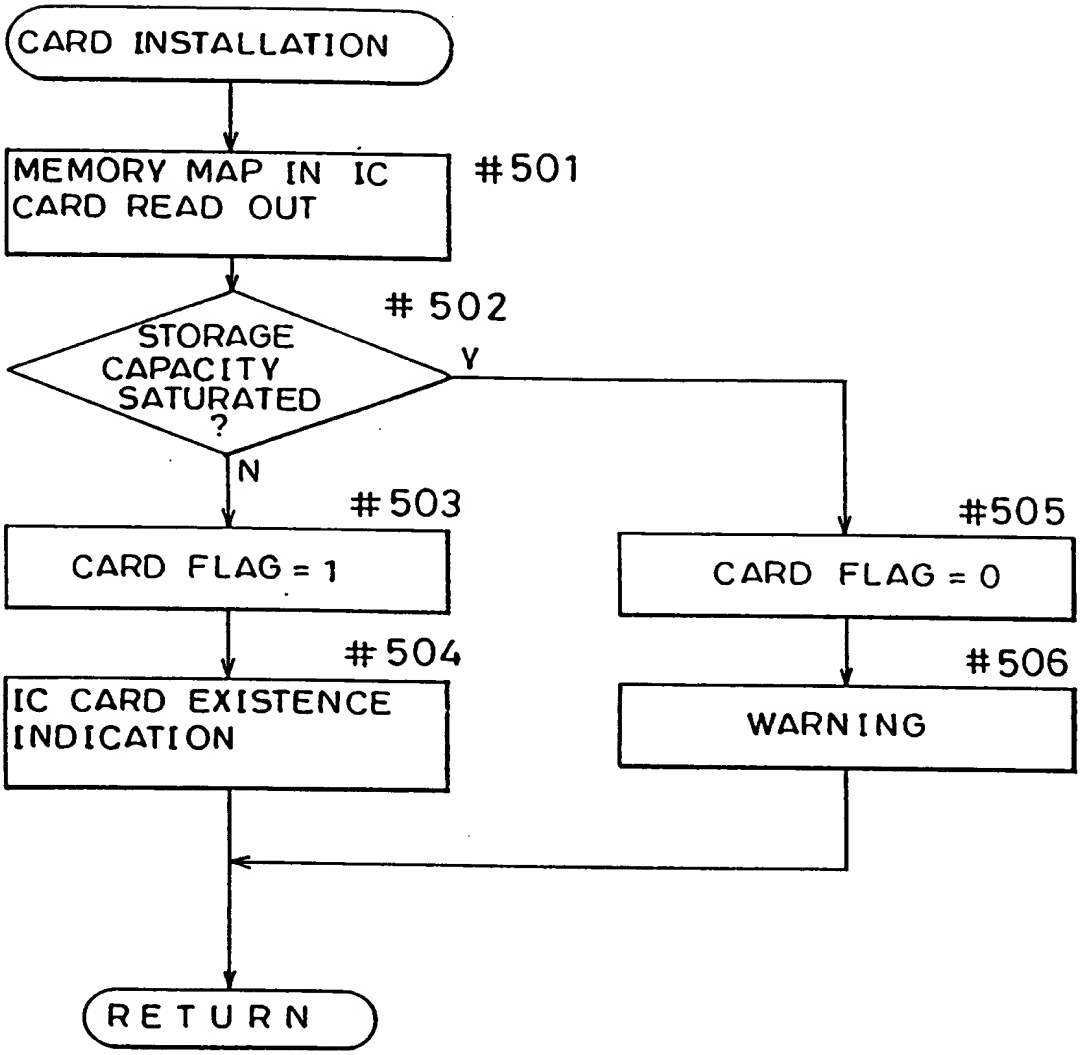
CARD INSTALLATION
MEMORY MAP IN IC CARD READ OUT
#501
STORAGE CAPACITY SATURATED ?
#502
Y
N
#503
CARD FLAG = 1
#504
IC CARD EXISTENCE INDICATION
#505
CARD FLAG = 0
#506
WARNING
RETURN

FIG.18

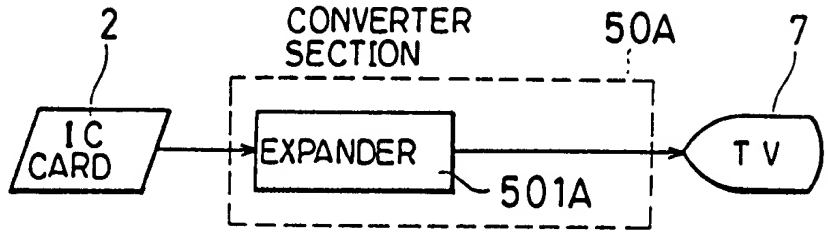

FIG.19

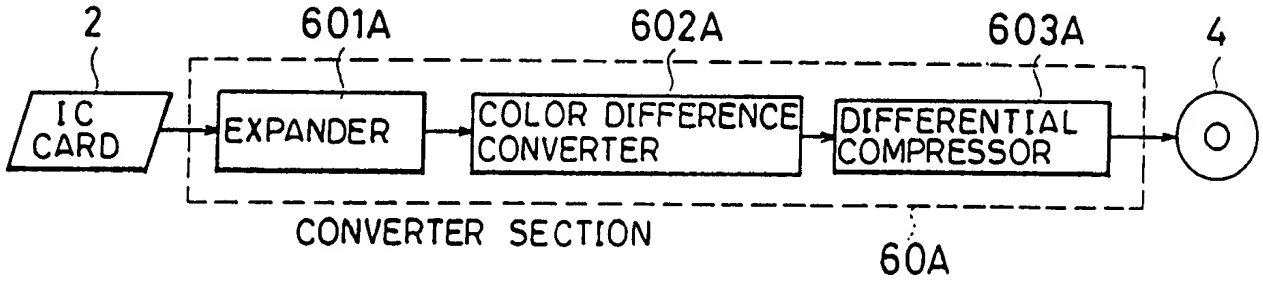

FIG.20

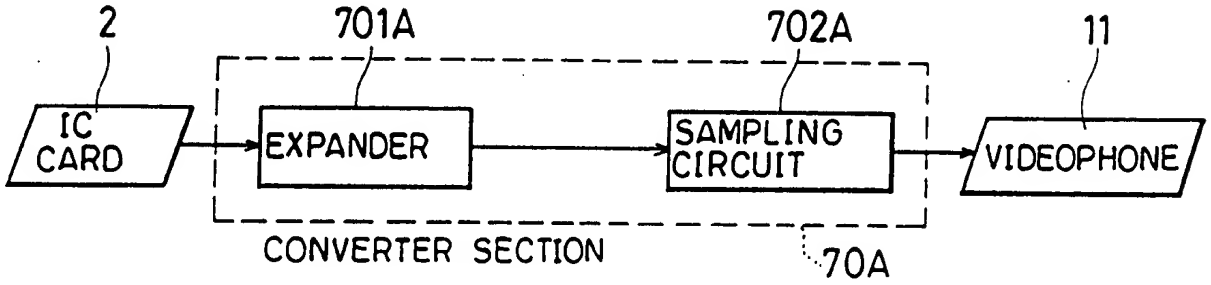

FIG.21

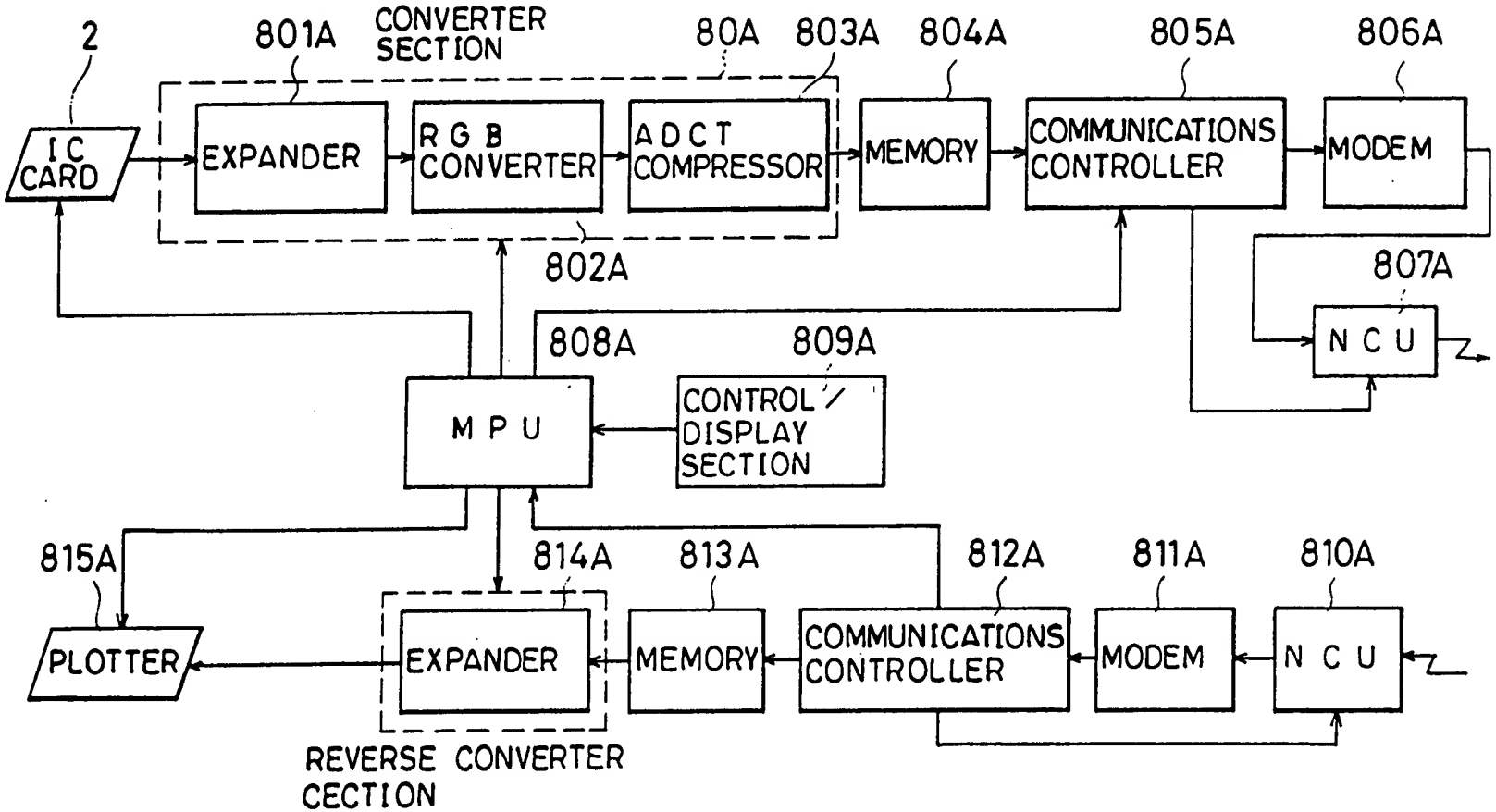
2
801A
CONVERTER SECTION
80A
803A
804A
805A
806A
IC CARD
EXPANDER
R G B CONVERTER
A D C T COMPRESSOR
MEMORY
COMMUNICATIONS CONTROLLER
MODEM
802A
807A
N C U
808A
809A
M P U
CONTROL / DISPLAY SECTION
815A
814A
813A
812A
811A
810A
PLOTTER
EXPANDER
MEMORY
COMMUNICATIONS CONTROLLER
MODEM
N C U
REVERSE CONVERTER CECTION

FIG.22

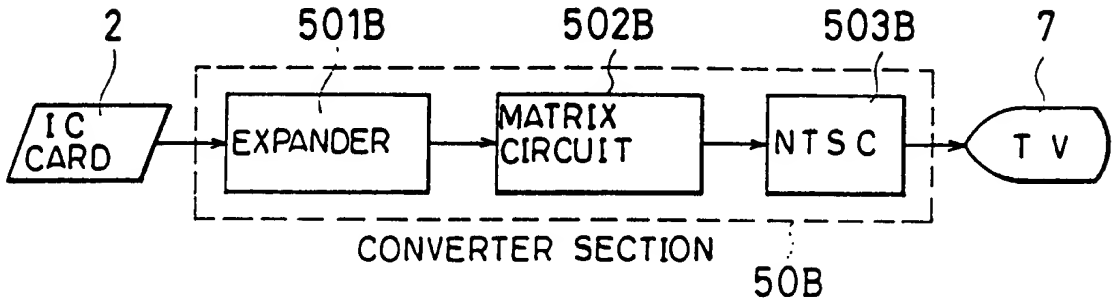

FIG.23

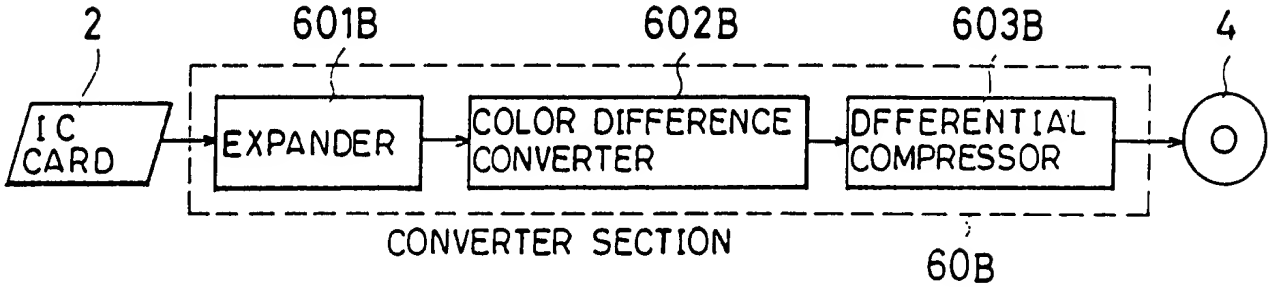

FIG.24

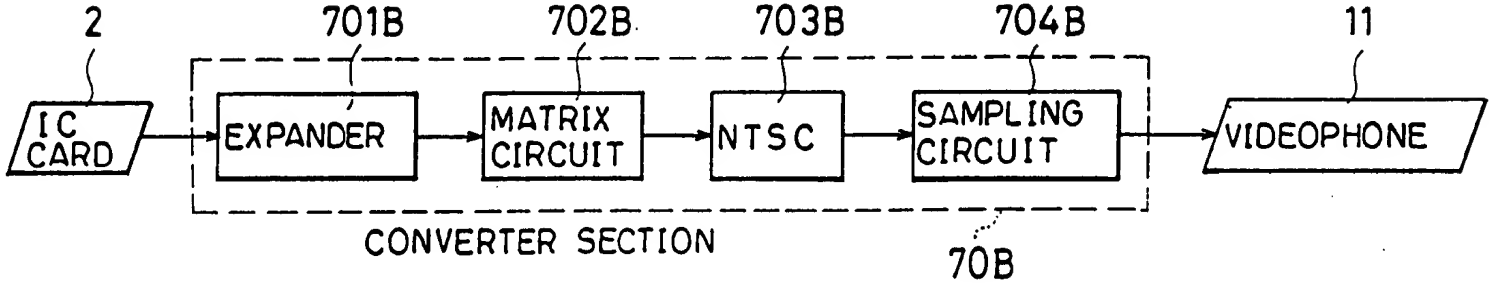

FIG.25

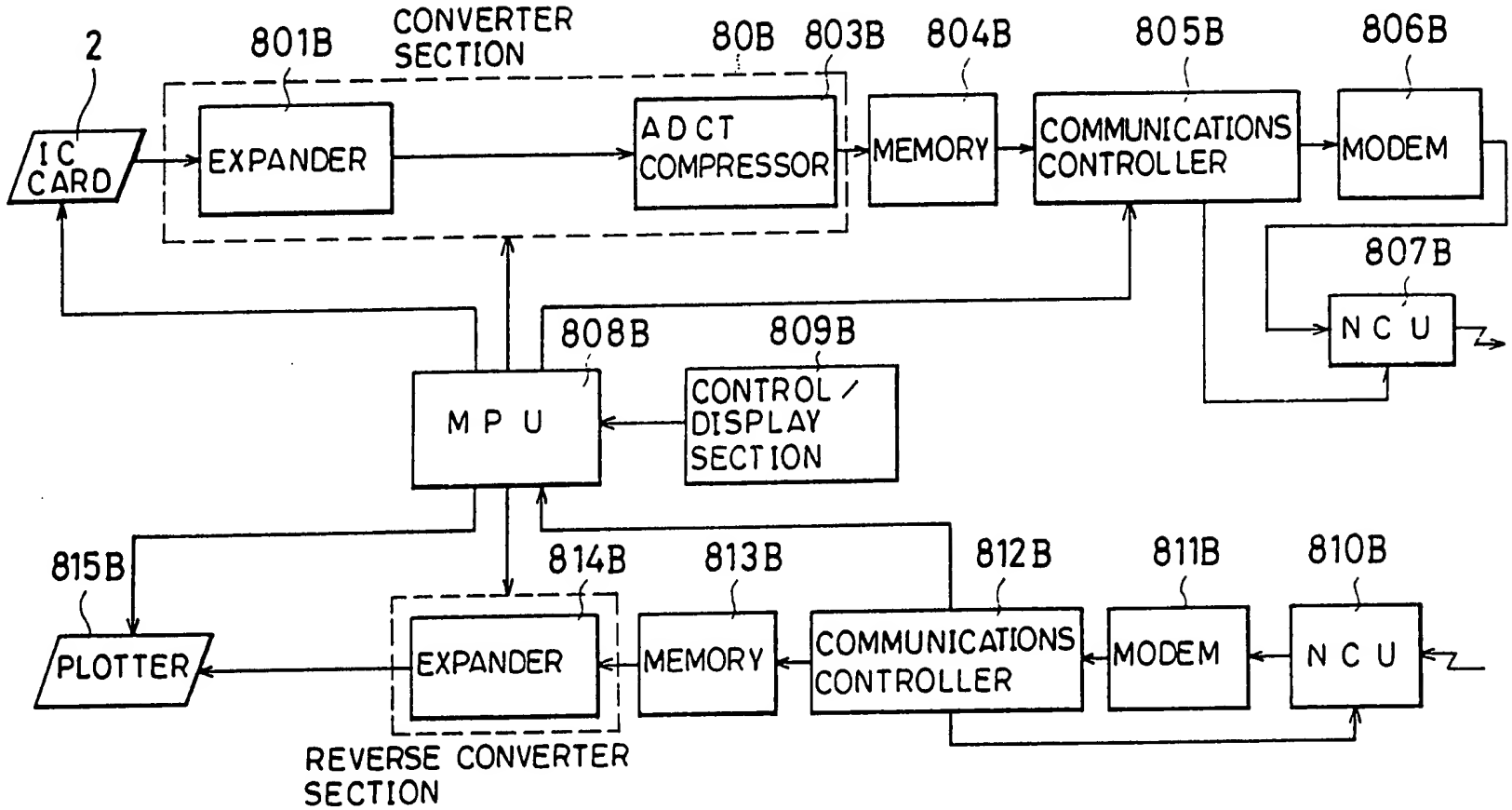
2
801B
CONVERTER SECTION
80B
803B
804B
805B
806B
IC CARD
EXPANDER
ADCT COMPRESSOR
MEMORY
COMMUNICATIONS CONTROLLER
MODEM
807B
NCU
808B
809B
MPU
CONTROL / DISPLAY SECTION
815B
814B
813B
812B
811B
810B
PLOTTER
EXPANDER
MEMORY
COMMUNICATIONS CONTROLLER
MODEM
NCU
REVERSE CONVERTER SECTION

FIG.26

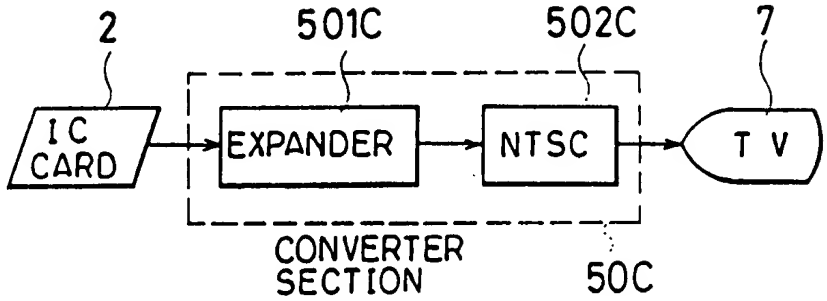

FIG.27

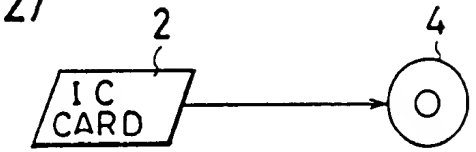

FIG.28

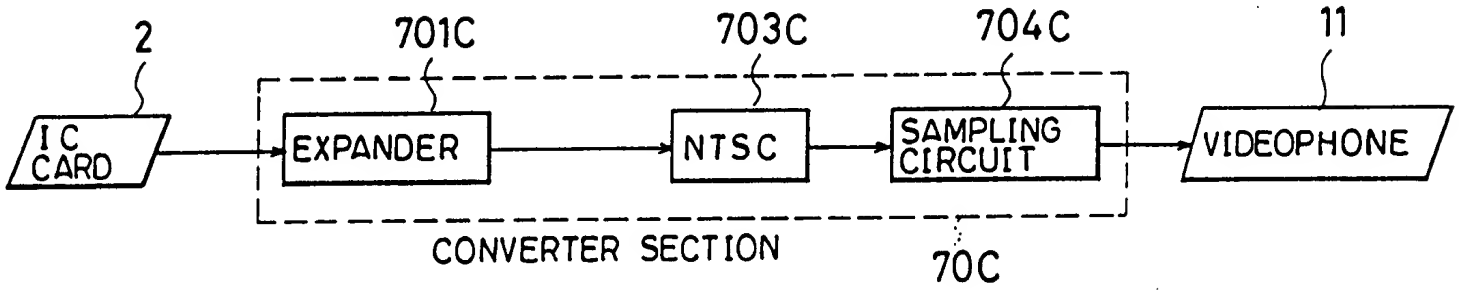

FIG.29

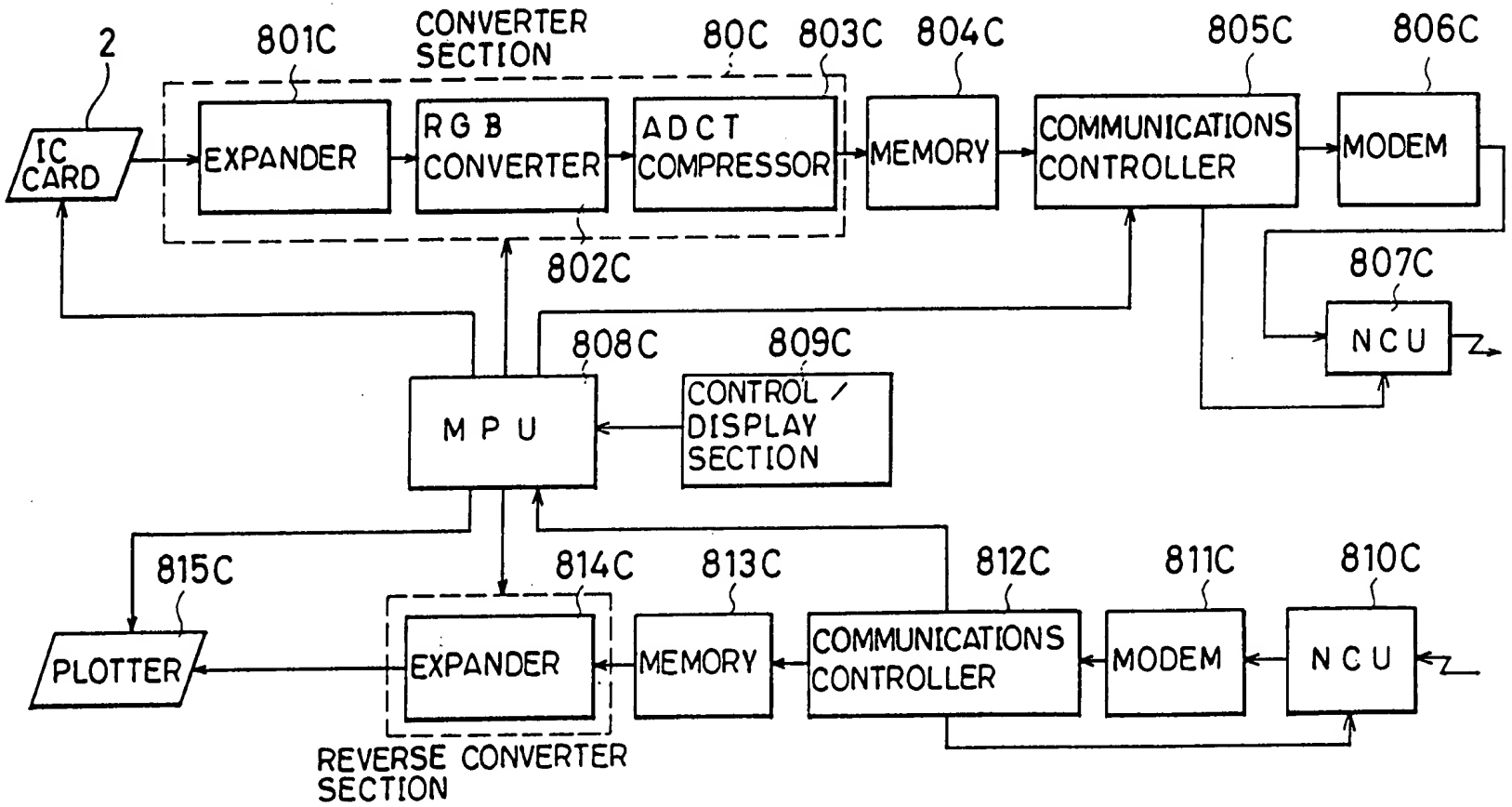
2
IC CARD
801C
EXPANDER
CONVERTER SECTION
RGB CONVERTER
80C
ADCT COMPRESSOR
803C
804C
MEMORY
805C
COMMUNICATIONS CONTROLLER
806C
MODEM
802C
807C
NCU
808C
MPU
809C
CONTROL / DISPLAY SECTION
815C
PLOTTER
814C
EXPANDER
813C
MEMORY
812C
COMMUNICATIONS CONTROLLER
811C
MODEM
810C
NCU
REVERSE CONVERTER SECTION

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FIG.30

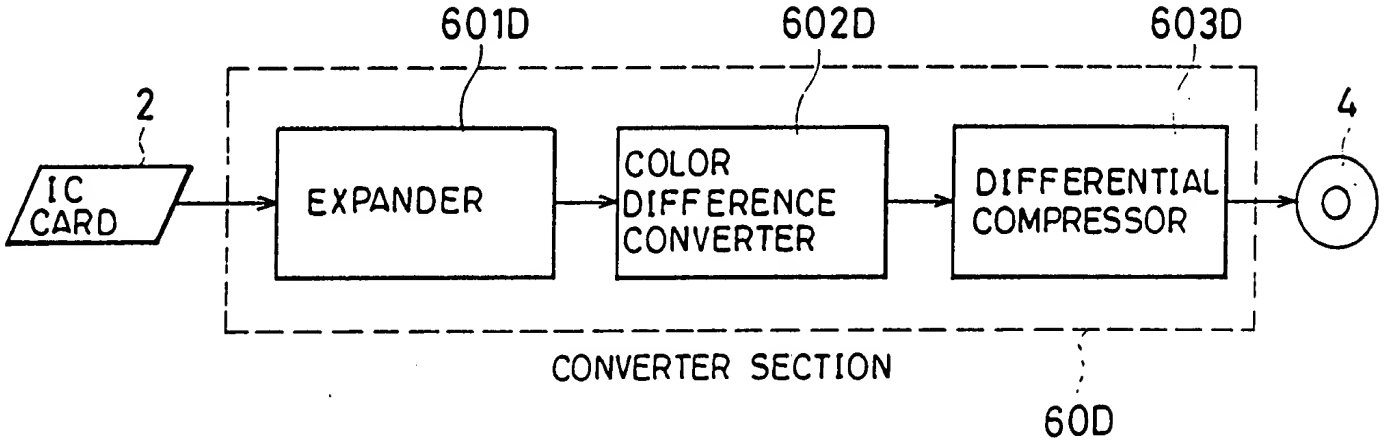


FIG.31

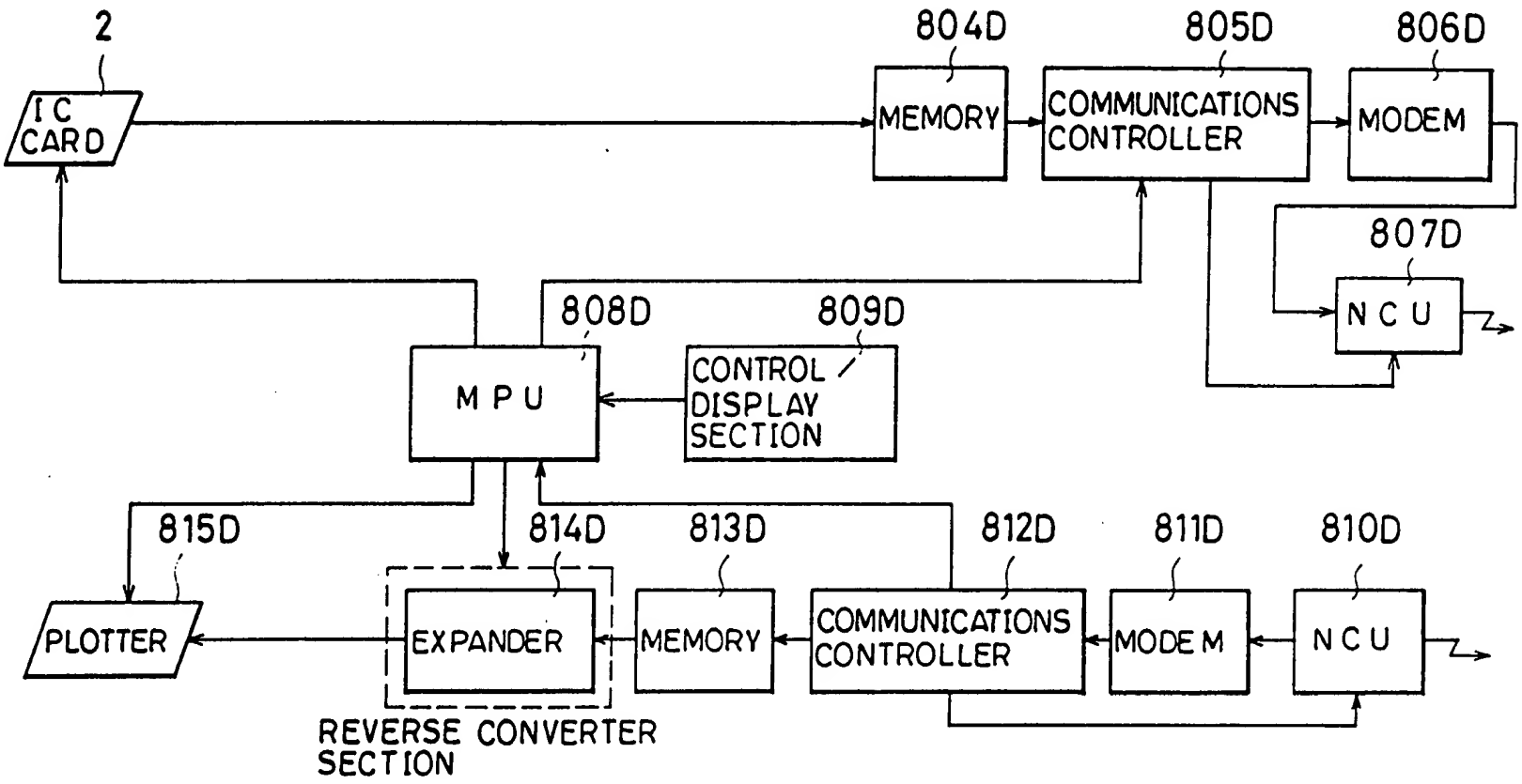

2
IC CARD
804D
MEMORY
805D
COMMUNICATIONS CONTROLLER
806D
MODEM
807D
NCU
808D
MPU
809D
CONTROL / DISPLAY SECTION
815D
PLOTTER
814D
EXPANDER
813D
MEMORY
812D
COMMUNICATIONS CONTROLLER
811D
MODEM
810D
NCU
REVERSE CONVERTER SECTION

FIG.32

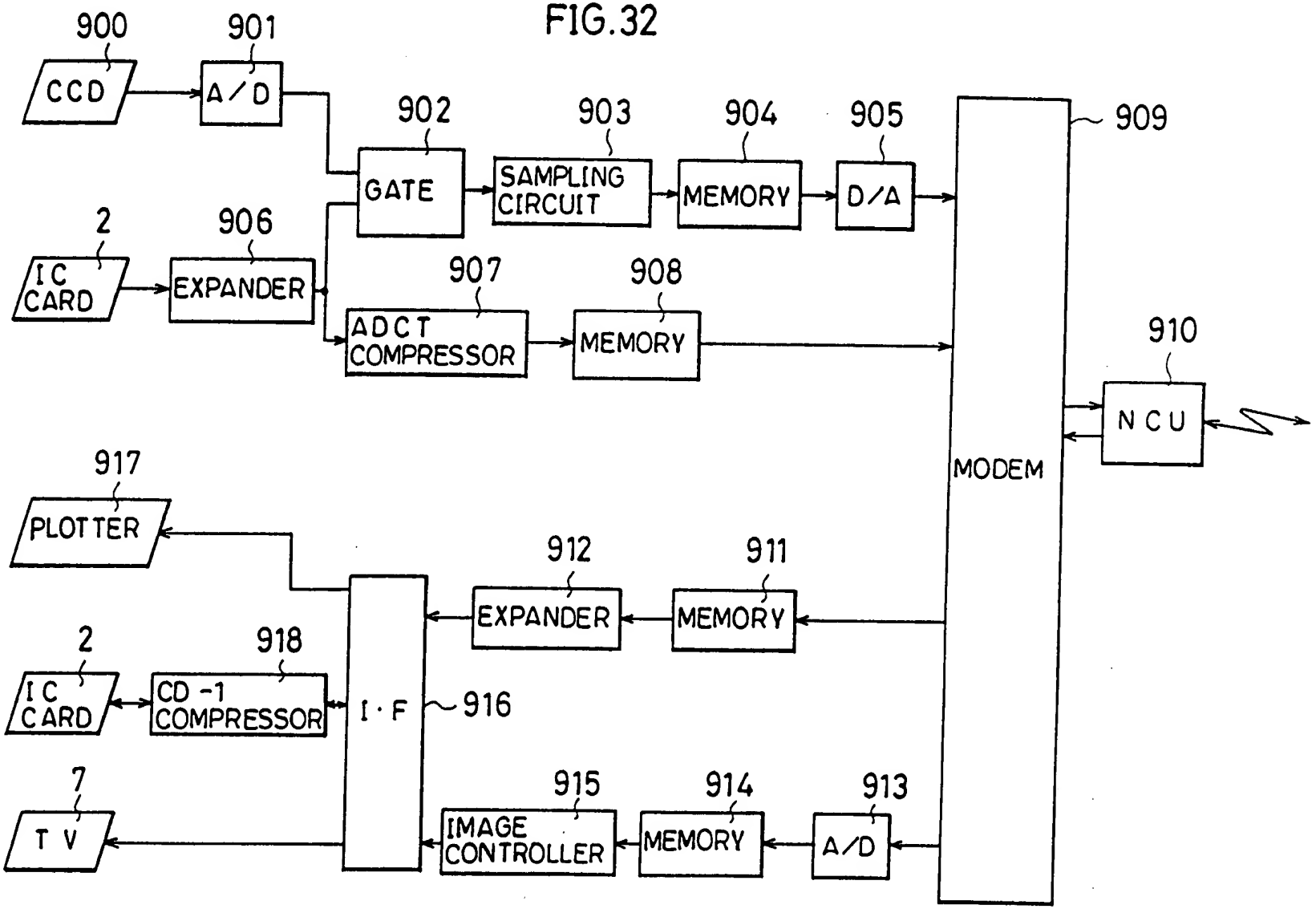

900
CCD
901
A/D
902
GATE
903
SAMPLING CIRCUIT
904
MEMORY
905
D/A
909
MODEM
2
IC CARD
906
EXPANDER
907
ADCT COMPRESSOR
908
MEMORY
910
NCU
917
PLOTTER
912
EXPANDER
911
MEMORY
2
IC CARD
918
CD-1 COMPRESSOR
I·F
916
7
TV
915
IMAGE CONTROLLER
914
MEMORY
913
A/D

FIG.33

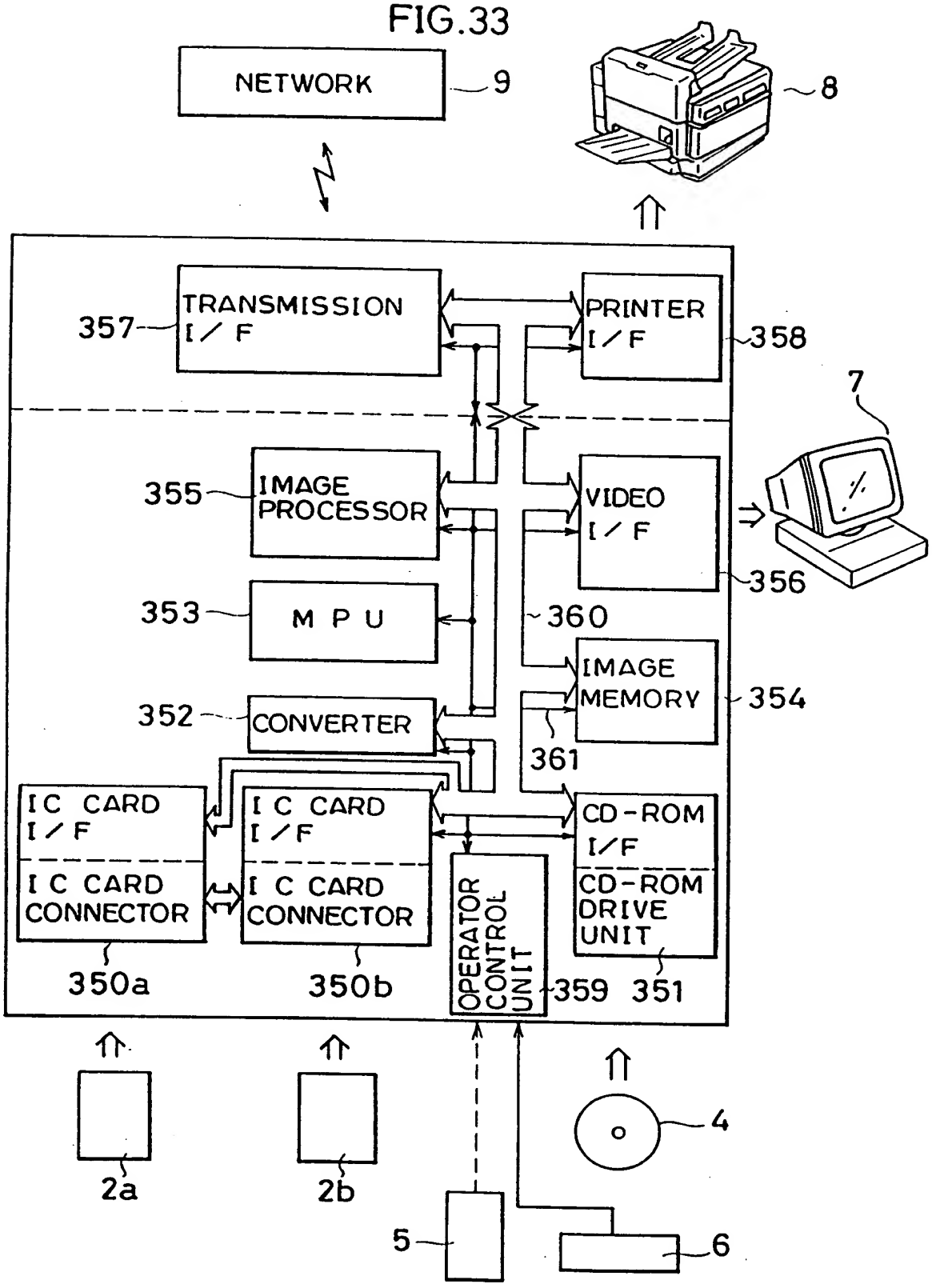

NETWORK
9
8
TRANSMISSION I/F
357
PRINTER I/F
358
7
IMAGE PROCESSOR
355
VIDEO I/F
356
M P U
353
360
IMAGE MEMORY
354
CONVERTER
352
361
IC CARD I/F
IC CARD I/F
CD-ROM I/F
IC CARD CONNECTOR
IC CARD CONNECTOR
CD-ROM DRIVE UNIT
OPERATOR CONTROL UNIT
350a
350b
359
351
2a
2b
4
5
6

FIG.34

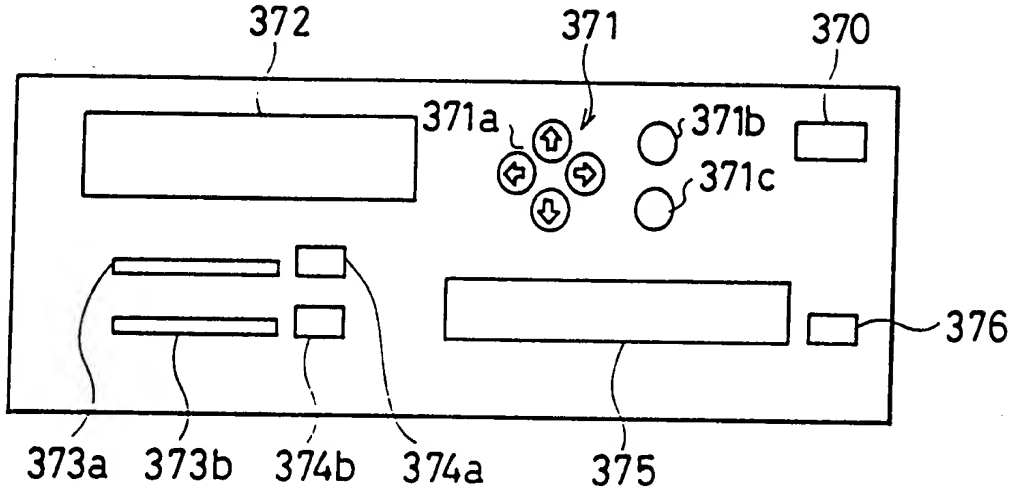


FIG.35

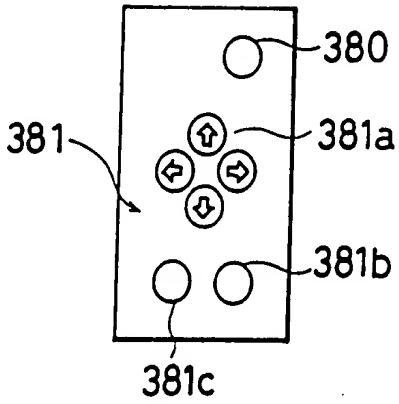


FIG.36

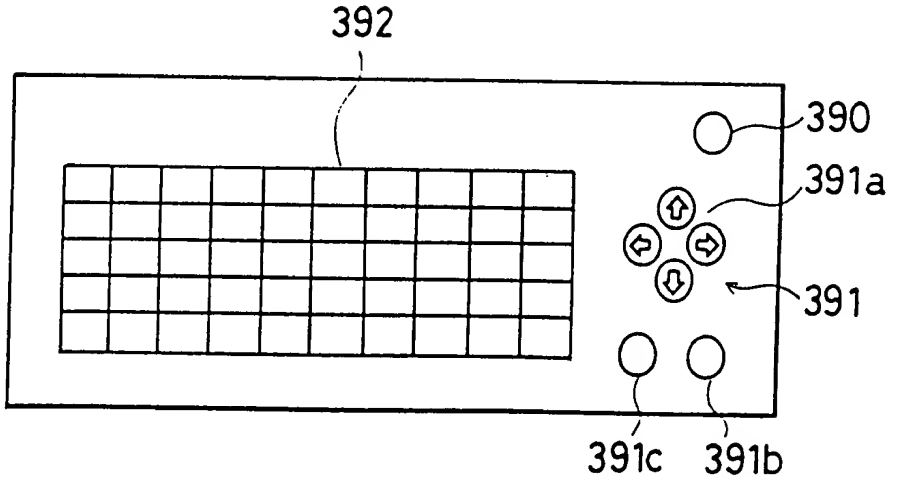


FIG.37

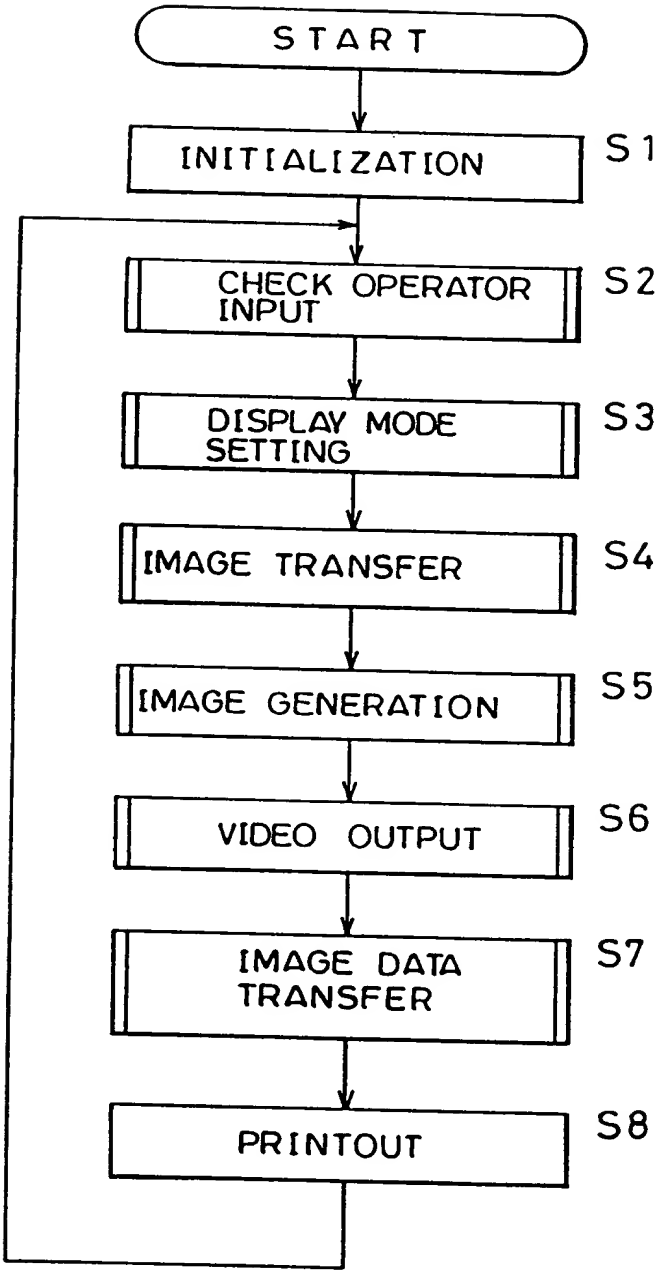

START
INITIALIZATION
S1
CHECK OPERATOR INPUT
S2
DISPLAY MODE SETTING
S3
IMAGE TRANSFER
S4
IMAGE GENERATION
S5
VIDEO OUTPUT
S6
IMAGE DATA TRANSFER
S7
PRINTOUT
S8

FIG.38

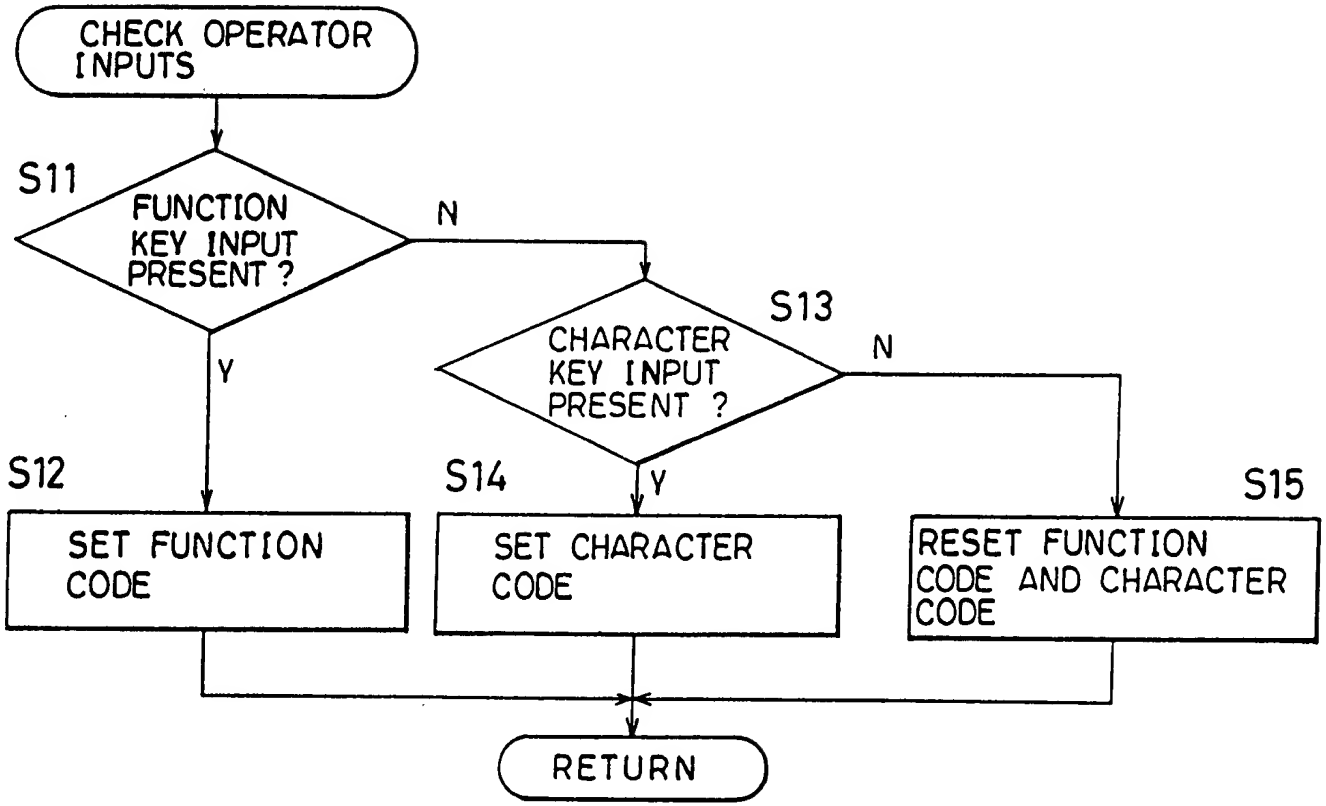

CHECK OPERATOR INPUTS
S11
FUNCTION KEY INPUT PRESENT ?
N
Y
S13
CHARACTER KEY INPUT PRESENT ?
N
Y
S12
SET FUNCTION CODE
S14
SET CHARACTER CODE
S15
RESET FUNCTION CODE AND CHARACTER CODE
RETURN

FIG.39

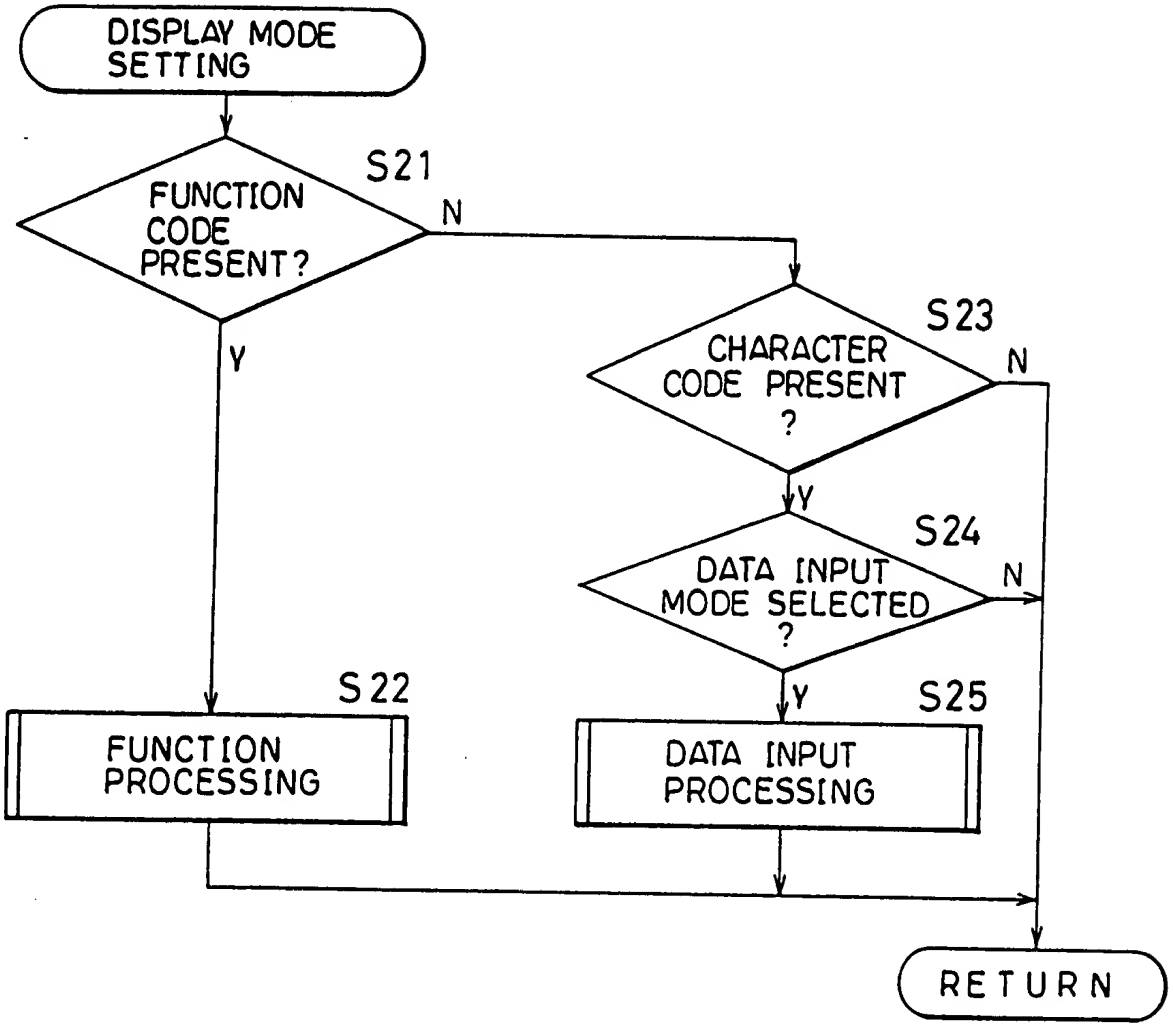

DISPLAY MODE SETTING
S21
FUNCTION CODE PRESENT?
N
Y
S23
CHARACTER CODE PRESENT ?
N
Y
S24
DATA INPUT MODE SELECTED ?
N
Y
S22
FUNCTION PROCESSING
S25
DATA INPUT PROCESSING
RETURN

FIG.40

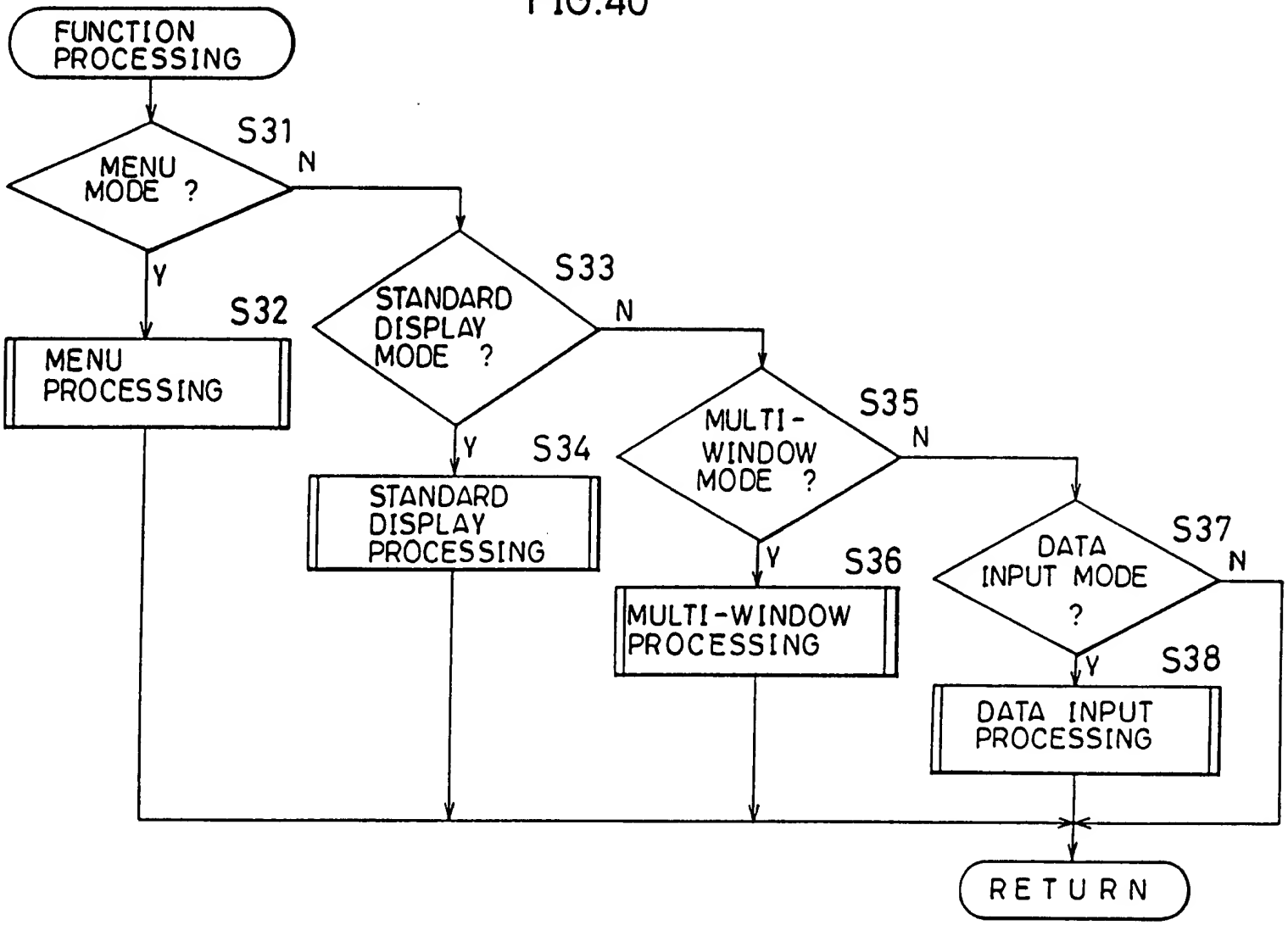

FUNCTION PROCESSING
S31
MENU MODE ?
N
Y
S32
MENU PROCESSING
S33
STANDARD DISPLAY MODE ?
N
Y
S34
STANDARD DISPLAY PROCESSING
S35
MULTI-WINDOW MODE ?
N
Y
S36
MULTI-WINDOW PROCESSING
S37
DATA INPUT MODE ?
N
Y
S38
DATA INPUT PROCESSING
RETURN

FIG.41

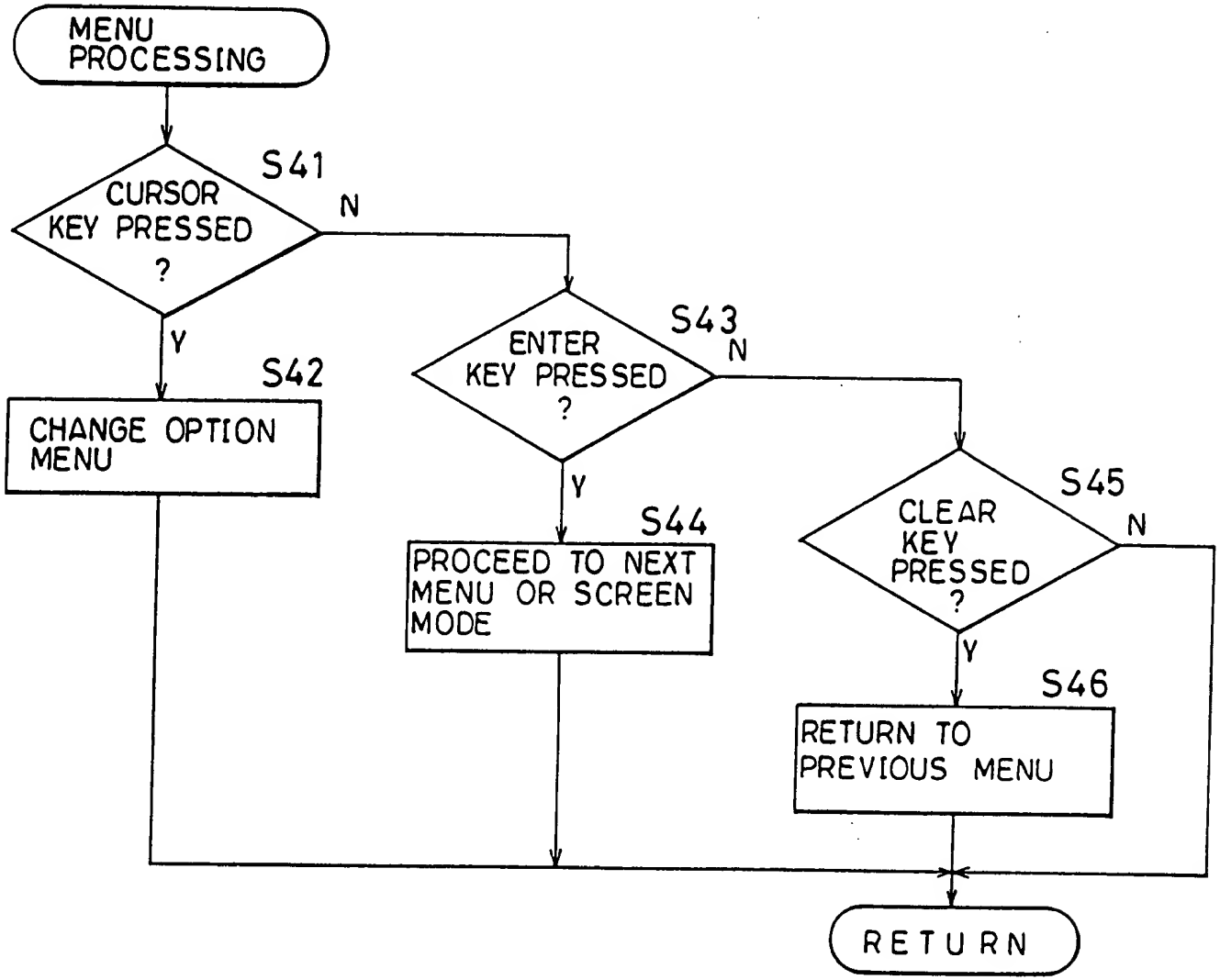

MENU PROCESSING
S41
CURSOR KEY PRESSED ?
N
Y
S42
CHANGE OPTION MENU
S43
ENTER KEY PRESSED ?
N
Y
S44
PROCEED TO NEXT MENU OR SCREEN MODE
S45
CLEAR KEY PRESSED ?
N
Y
S46
RETURN TO PREVIOUS MENU
RETURN

FIG.42

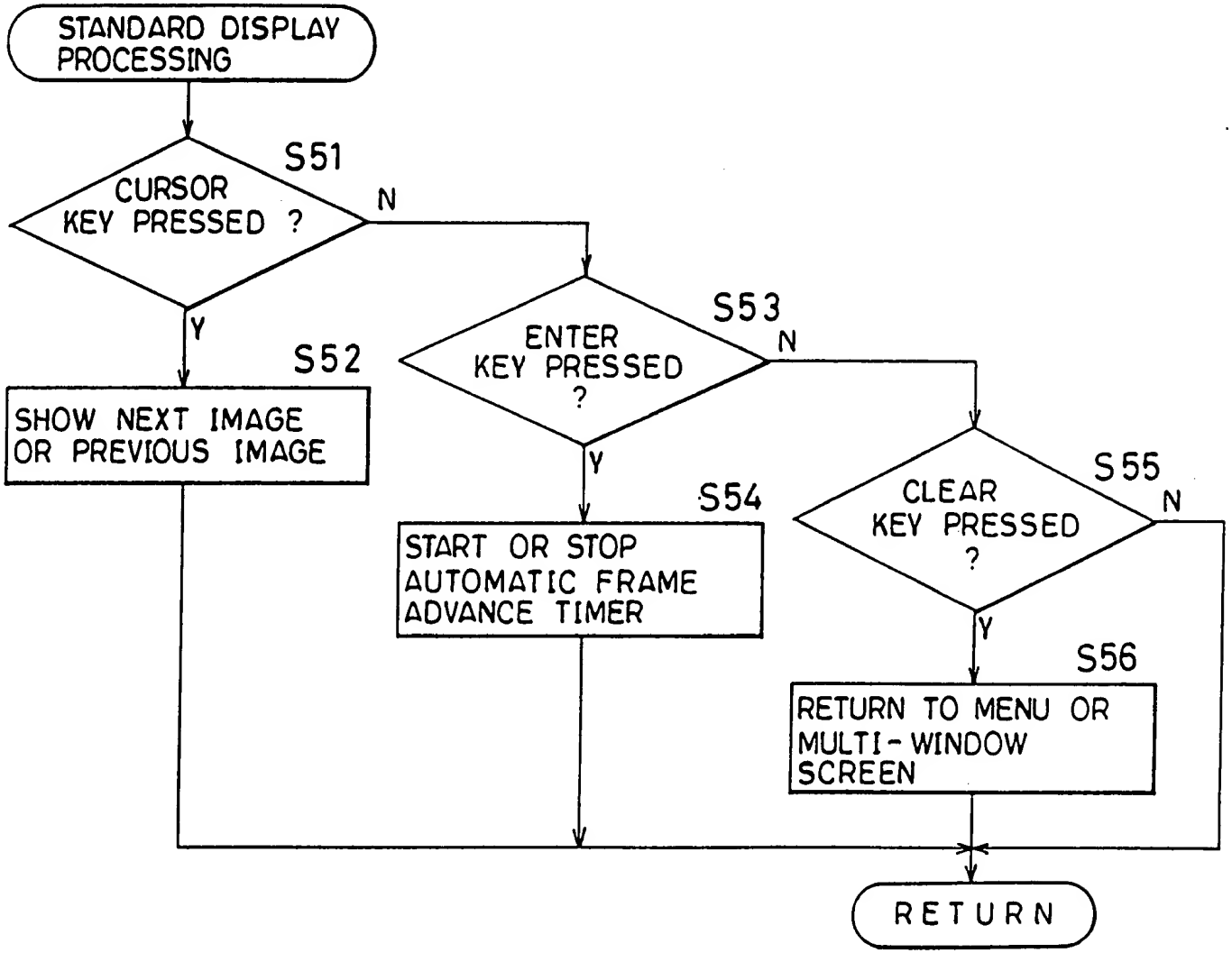

STANDARD DISPLAY PROCESSING
S51
CURSOR KEY PRESSED ?
N
Y
S52
SHOW NEXT IMAGE OR PREVIOUS IMAGE
S53
ENTER KEY PRESSED ?
N
Y
S54
START OR STOP AUTOMATIC FRAME ADVANCE TIMER
S55
CLEAR KEY PRESSED ?
N
Y
S56
RETURN TO MENU OR MULTI-WINDOW SCREEN
RETURN

FIG.43

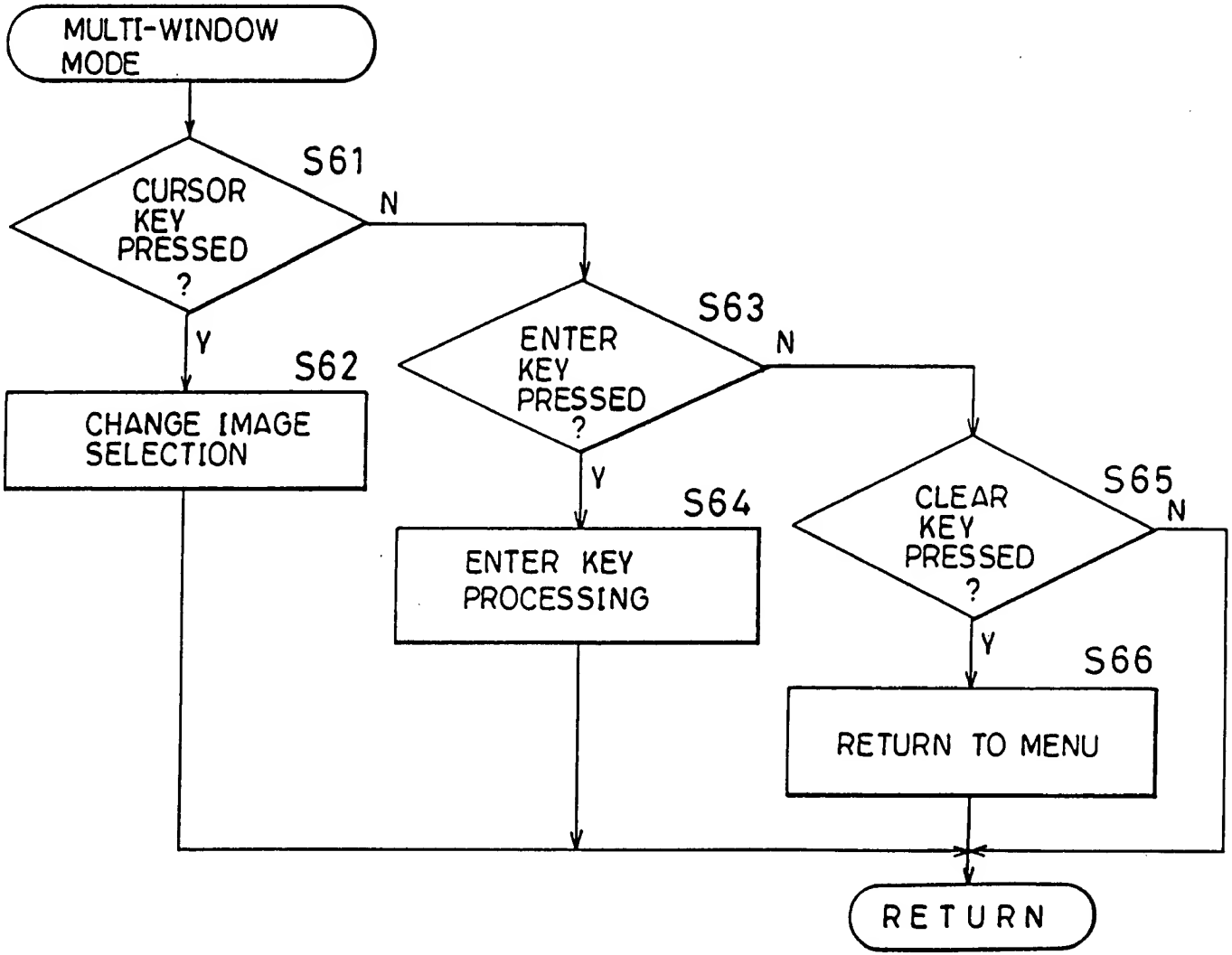

MULTI-WINDOW MODE
S61
CURSOR KEY PRESSED ?
N
Y
S62
CHANGE IMAGE SELECTION
S63
ENTER KEY PRESSED ?
N
Y
S64
ENTER KEY PROCESSING
S65
CLEAR KEY PRESSED ?
N
Y
S66
RETURN TO MENU
RETURN

FIG.44

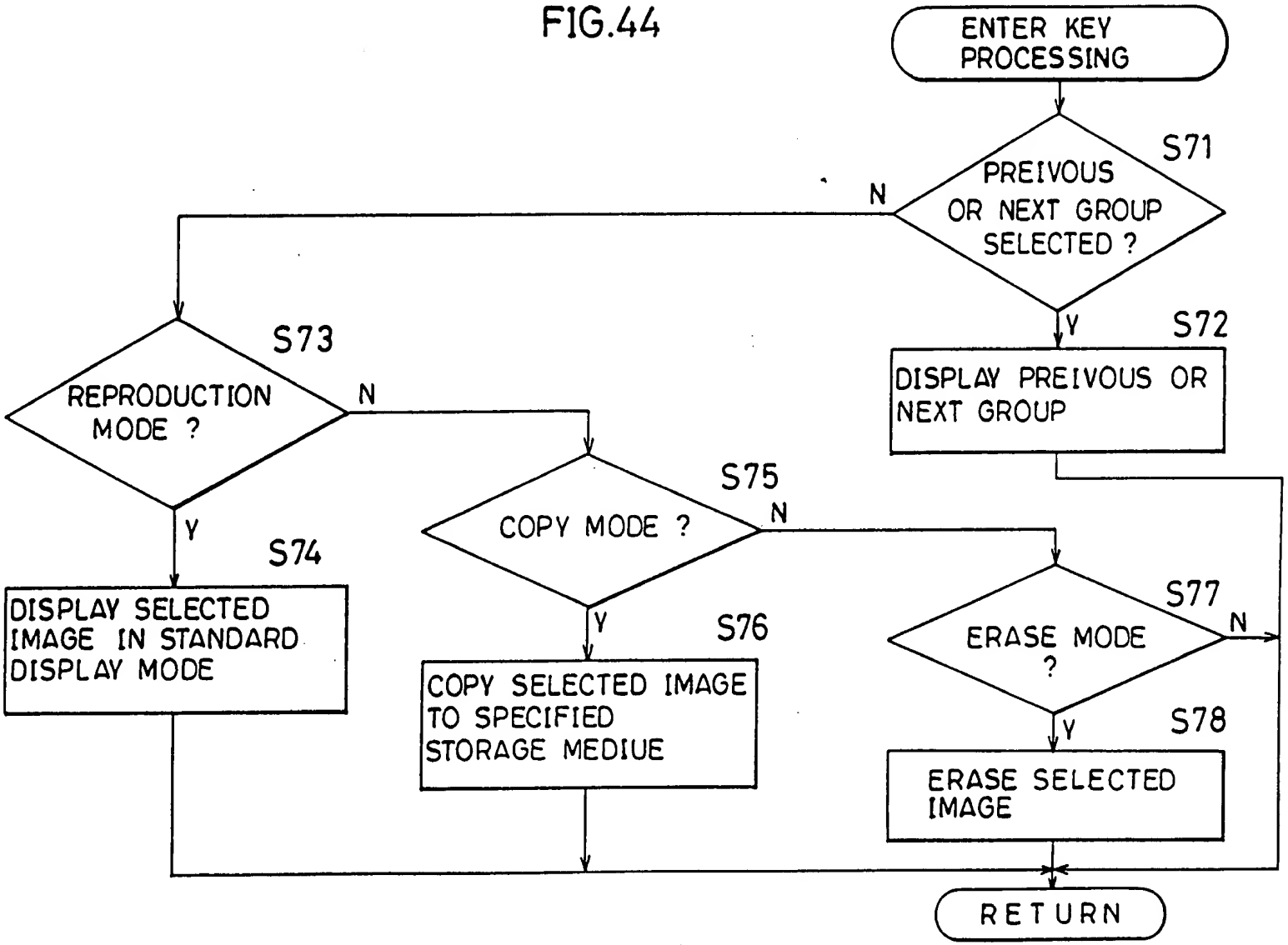

ENTER KEY PROCESSING
S71
PREIVOUS OR NEXT GROUP SELECTED ?
N
Y
S72
DISPLAY PREIVOUS OR NEXT GROUP
S73
REPRODUCTION MODE ?
N
Y
S74
DISPLAY SELECTED IMAGE IN STANDARD DISPLAY MODE
S75
COPY MODE ?
N
Y
S76
COPY SELECTED IMAGE TO SPECIFIED STORAGE MEDIUE
S77
ERASE MODE ?
N
Y
S78
ERASE SELECTED IMAGE
RETURN

FIG.45

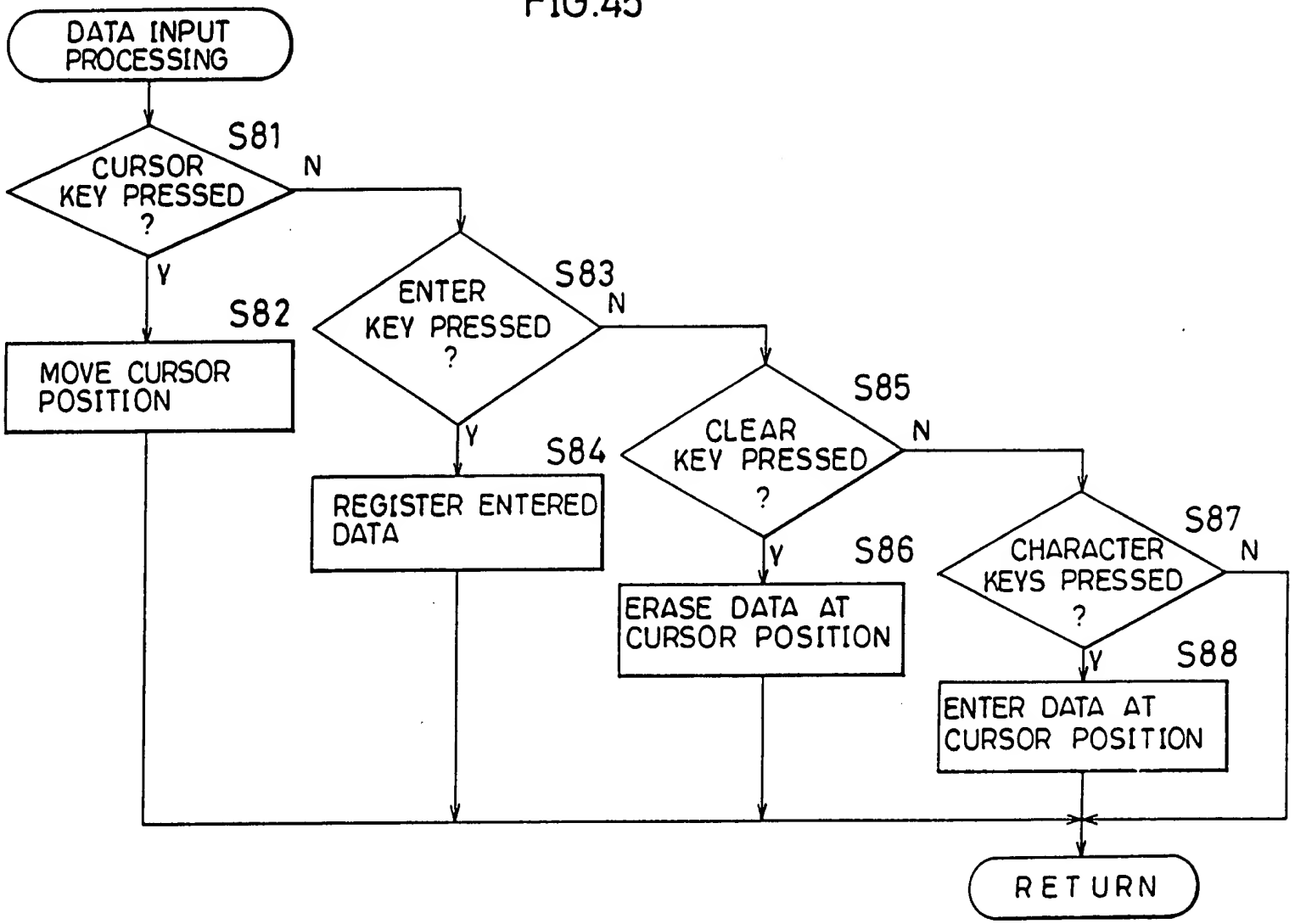

DATA INPUT PROCESSING
S81
CURSOR KEY PRESSED ?
N
Y
S82
MOVE CURSOR POSITION
S83
ENTER KEY PRESSED ?
N
Y
S84
REGISTER ENTERED DATA
S85
CLEAR KEY PRESSED ?
N
Y
S86
ERASE DATA AT CURSOR POSITION
S87
CHARACTER KEYS PRESSED ?
N
Y
S88
ENTER DATA AT CURSOR POSITION
RETURN

FIG.46

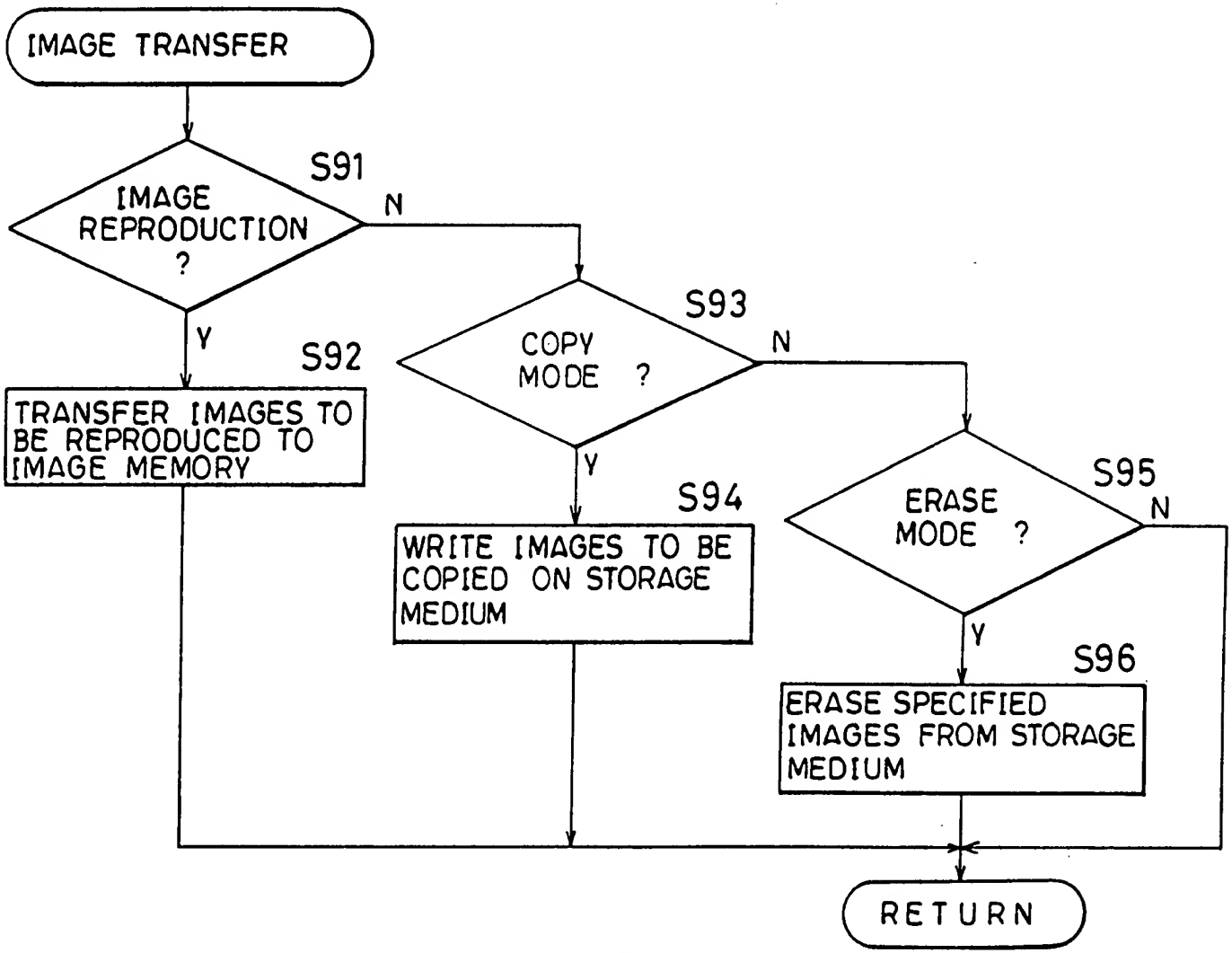


IMAGE TRANSFER
S91
IMAGE REPRODUCTION ?
N
Y
S92
TRANSFER IMAGES TO BE REPRODUCED TO IMAGE MEMORY
S93
COPY MODE ?
N
Y
S94
WRITE IMAGES TO BE COPIED ON STORAGE MEDIUM
S95
ERASE MODE ?
N
Y
S96
ERASE SPECIFIED IMAGES FROM STORAGE MEDIUM
RETURN

FIG.47

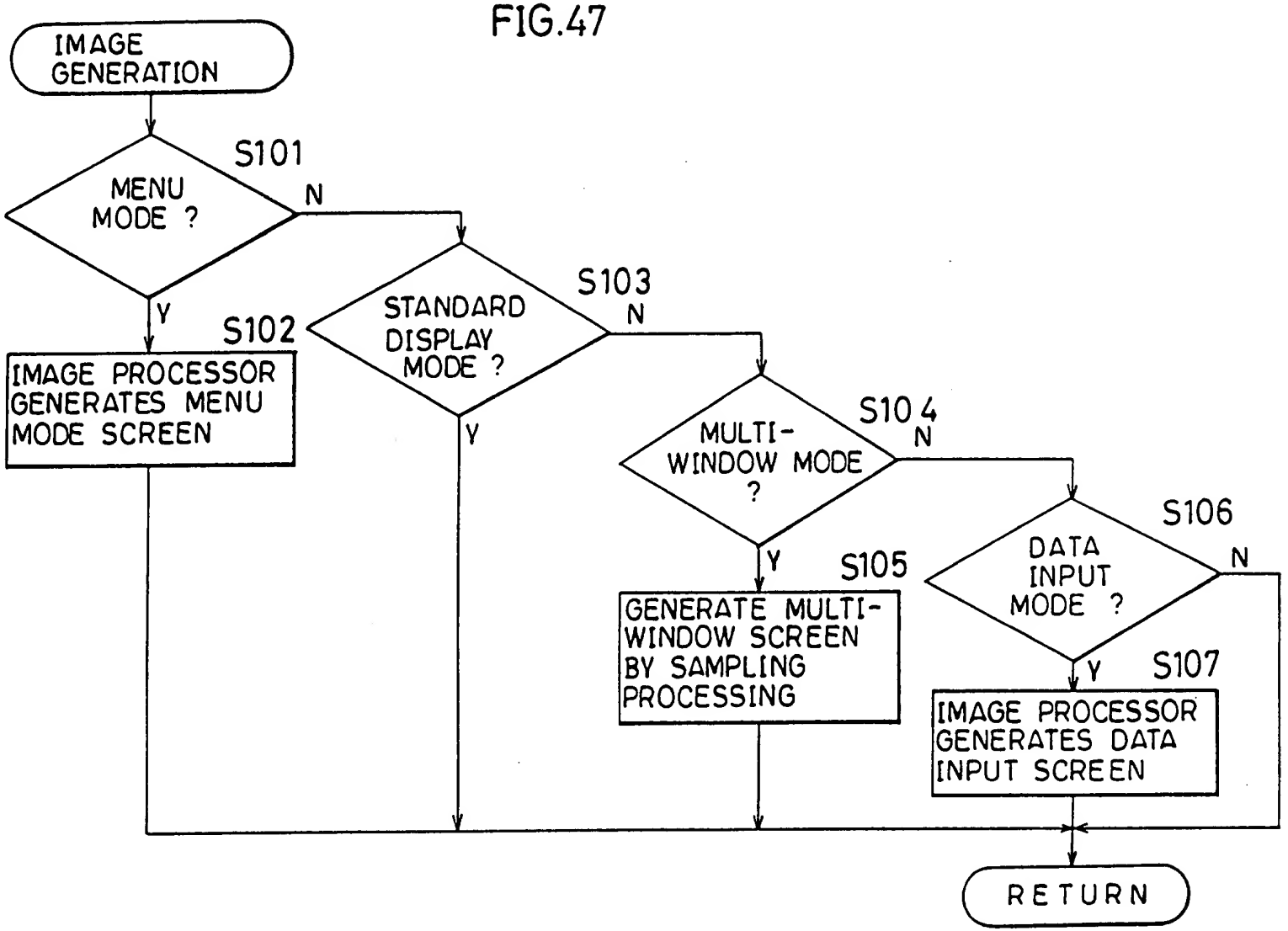
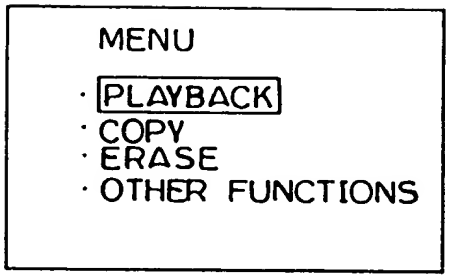


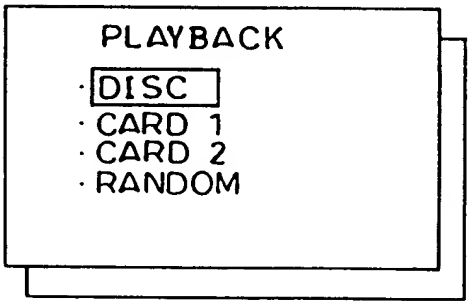
IMAGE GENERATION
S101
MENU MODE ?
N
Y
S102
IMAGE PROCESSOR GENERATES MENU MODE SCREEN
S103
STANDARD DISPLAY MODE ?
N
Y
S104
MULTI-WINDOW MODE ?
N
Y
S105
GENERATE MULTI-WINDOW SCREEN BY SAMPLING PROCESSING
S106
DATA INPUT MODE ?
N
Y
S107
IMAGE PROCESSOR GENERATES DATA INPUT SCREEN
RETURN

FIG.48

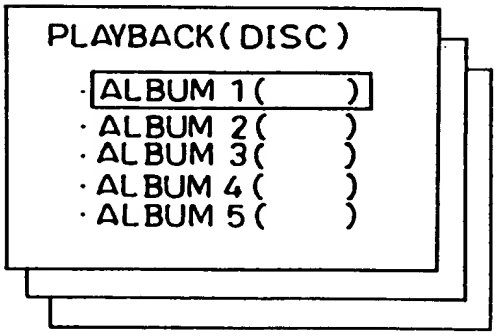
(a)



(b)



(c1)



(c2)

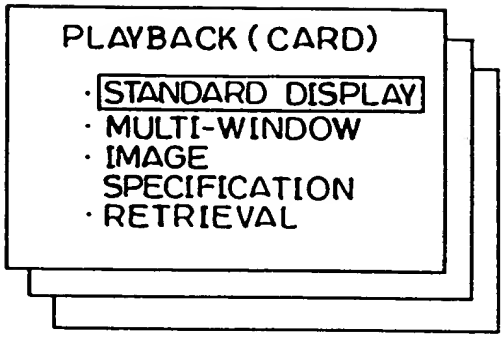
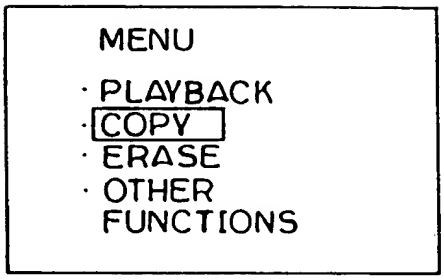
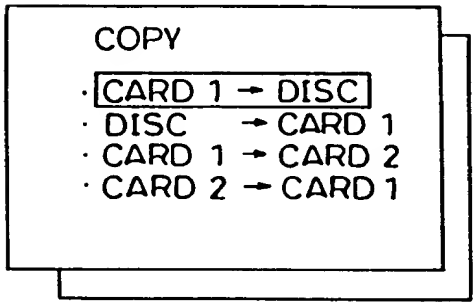


FIG.49

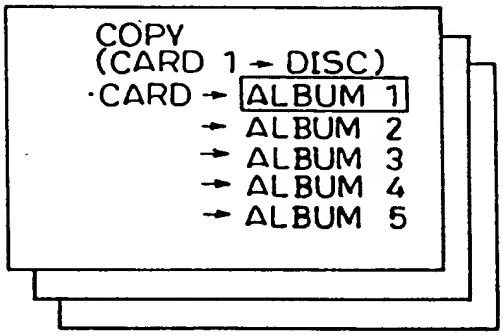
(a)


MENU
· PLAYBACK
· COPY
· ERASE
· OTHER FUNCTIONS

(b)


COPY
· CARD 1 → DISC
· DISC → CARD 1
· CARD 1 → CARD 2
· CARD 2 → CARD 1

(c)


COPY
(CARD 1 → DISC)
· CARD → ALBUM 1
→ ALBUM 2
→ ALBUM 3
→ ALBUM 4
→ ALBUM 5

(d)

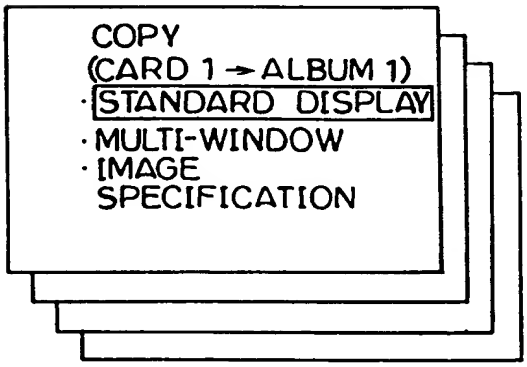

COPY
(CARD 1 → ALBUM 1)
· STANDARD DISPLAY
· MULTI-WINDOW
· IMAGE SPECIFICATION

FIG.50

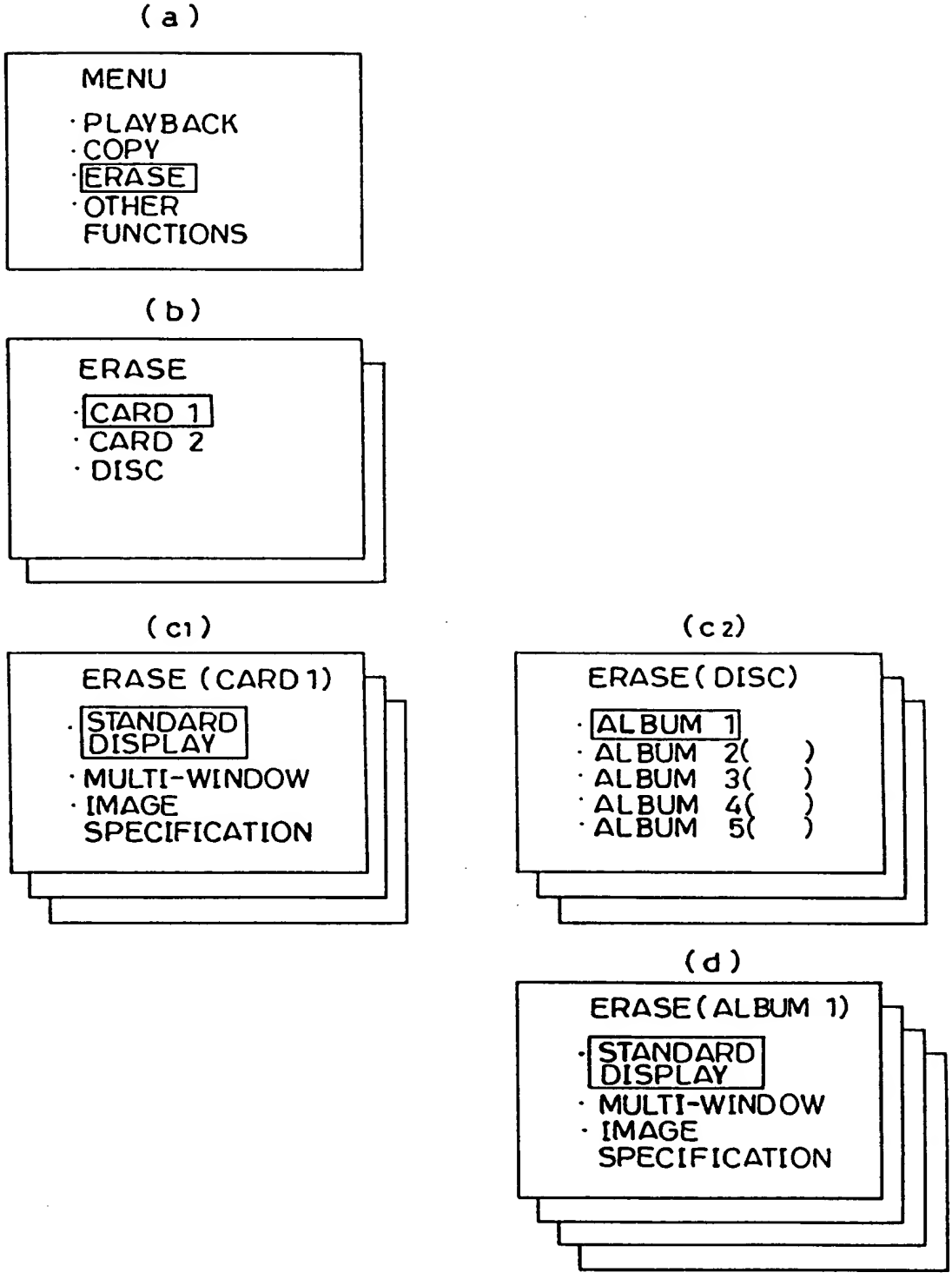
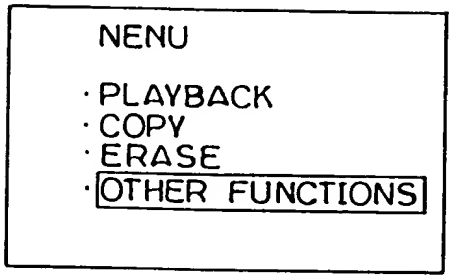

(a)
MENU
· PLAYBACK
· COPY
· ERASE
· OTHER FUNCTIONS
(b)
ERASE
· CARD 1
· CARD 2
· DISC
(c1)
ERASE (CARD 1)
· STANDARD DISPLAY
· MULTI-WINDOW
· IMAGE SPECIFICATION
(c2)
ERASE (DISC)
· ALBUM 1
· ALBUM 2( )
· ALBUM 3( )
· ALBUM 4( )
· ALBUM 5( )
(d)
ERASE (ALBUM 1)
· STANDARD DISPLAY
· MULTI-WINDOW
· IMAGE SPECIFICATION

FIG.51

(a)



(b)

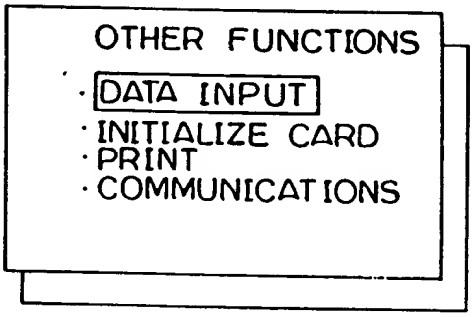
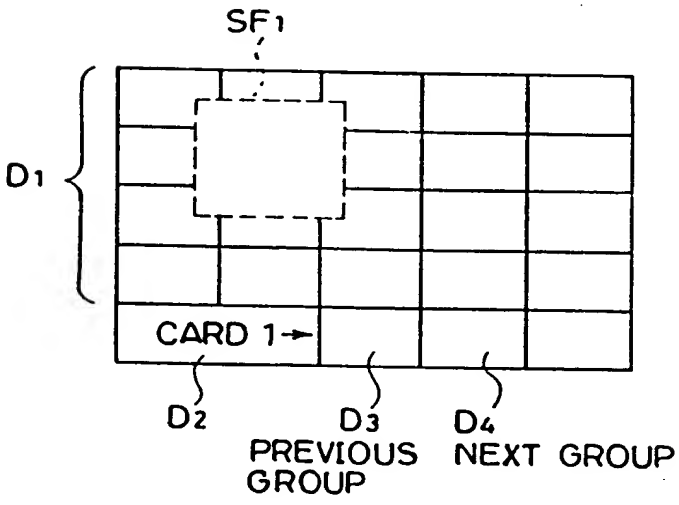



FIG.52